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THE NEW INTERNATIONAL YEAR BOOK

A COMPENDIUM OF THE WORLD'S PROGRESS

FOR THE YEAR

1913

EDITOR

FRANK MOORE COLBY, M.A.

ASSOCIATE EDITORS

ALLEN LEON CHURCHILL
HORATIO S. KRANS, PH.D.

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1914

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PREFACE

The New International Year Book for 1913 is the seventh in the new series, which began with the 1907 volume. Like its predecessors it is designed as an encyclopædia of the year and includes many classes of information not to be found in other annual volumes of its kind. Its large size and the exclusion of matters not belonging to the year or not derived from the latest available information make this possible. For example, among departments not found or less fully represented in other such works are Biography, Agriculture, Political History at home and abroad, Societies, and Religious Bodies. While American subjects are here more fully treated than in British annuals, the international scope of the work involves more attention to foreign affairs than is given in similar American publications.

Among the important features of the year 1913, discussed in this volume, the following may be mentioned: In foreign affairs, the developments in the Balkans, the Mexican difficulty, republican progress in China, the Ulster situation, and the progress of the Home Rule Bill; in the United States, such legislative measures as the Tariff Bill, Income Tax Law, and the Currency Law; in industrial matters, the history of Trades Unions, the I. W. W., Socialism, Strikes and Lockouts, Railroads, Workmen's Compensation, Workmen's and Mothers' Pensions, Welfare Work, etc. Owing to the increased interest in the industrial and political life of the South and Central American countries, the Year Book gives special attention to topics within this field. It has also discussed at length the woman's movement both in its general aspect under Feminism and in a specific aspect under Woman's Suffrage, while recording the yearly incidents of the movement in the paragraphs entitled History under the various countries and under the separate States of the United States. Other matters of current interest which have received special attention are Safety at Sea, Railway Accidents, Aeronautics, Commission Government, Banks and Banking, Agricultural Credit, the New York Aqueduct, International and Industrial Arbitration, Insurance, and Electrical and Engineering topics.

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Note: In certain tables in this work it will be found, by addition, that the totals do not correspond to the sum of the items. This is the result of the omission or inclusion of certain small items which are not mentioned in the table, but are included in the totals. This is a usage frequently employed in the compilation of government statistics, from which sources the greater number of the tables in the YEAR BOOK are taken.

THE NEW INTERNATIONAL YEAR BOOK

ABYSSINIA (ETHIOPIA). An independent east African empire. The estimates of area vary from 308,000 to 432,000 square miles. The population, estimated at between nine and eleven millions, is about one-half Abyssinians; Gallas, Somalis, Danakils, Negroes, etc., make up the remainder. Abyssinia is volcanic and mountainous, and contains some minerals—iron, coal, gold, salt, saltpetre, and sulphur. The plateaus are well watered, with a temperate climate, and grow cereals, potatoes, tobacco, fruits, etc; the lower country is excessively hot, and there sugar-cane, cotton, coffee, rubber, etc., thrive. There are good grazing grounds and cattle are raised; the prosperity of the country depends largely on its livestock. Imports by way of Jibuti: 1908, 7,700,133 francs; 1909, 10,474,717; 1911, 8,722,531. Exports: 1908, 9,469,248; 1909, 13,069,290; 1911, 11,765,844 (skins, 4,865,000; coffee, 4,567,000; ivory, 1,137,000; wax, 986,000). Imports through Italian ports (1911), 2,320,558 lire; exports, 3,072,100 lire. Imports through Gambela (Sudan), £E 27,962; exports, £E 37,754. The first section of the railway building under French auspices extends from Jibuti to Diré Dawa (309 kilometers, of which 219 kms. run through Abyssinian territory); the second, opened in 1913, from Diré Dawa to Mehesso (152 kms.); the third, under construction, from Mehesso to Addis Abbeba, the capital. This town has a permanent population estimated at 60,000, and a floating population of some 30,000; Harrar has 40,000, Diré Dawa 5000. There is no education. The national religion is coptic Christian (monophysitism). The emperor (negus negust) has absolute power. Menelek II. was born August 18, 1844. First king of Shoa, he became emperor in 1889. Rumors were current from time to time of the emperor's death, all of which proved unfounded, until on December 22 an authentic report of his demise was received, and Lidj Jeassu (born 1897), the son of Menelek's daughter, became emperor in his stead.

ARMY. The emperor collected from the various provinces by feudal and tribal levies a force of 60,000 men, more or less armed and disciplined, to which the men drafted from the various tribes and provinces would add some 200,000 men. Eighty per cent. of this army was infantry.

ACADEMY, FRENCH (ACADÉMIE FRANÇAISE). Of the five academies which contsitute the Institute of France, this is the first. Its forty members are the last authority in matters of language, grammar, and the like, and are generally deferred to as arbiters in the sphere of literature. In 1912, Gen. Louis Lyantey was elected to succeed Jules Henri Poincaré, and Emile Boutroux to succeed Hippolyte Langlois de Vogüé. No new members were admitted in 1913. The awarding of forty-five *prix littéraires* and forty-nine *prix de vertu* is one function of the academy.

ACADEMY OF ARTS AND LETTERS, AMERICAN. The following was the membership of the American Academy of Arts and Letters in 1913: William Dean Howells, Henry James, Henry Adams, Thomas Raynesford Lounsbury, Theodore Roosevelt, John Singer Sargent, Alfred Thayer Mahan, Daniel Chester French, John Burroughs, James Ford Rhodes, Horatio William Parker, William Milligan Sloane, Robert Underwood Johnson, George Washington Cable, Andrew Dickson White, Henry van Dyke, William Cary Brownell, Basil Lanneau Gildersleeve, Woodrow Wilson, Arthur Twining Hadley, Henry Cabot Lodge, Francis Hopkinson Smith, Edwin Howland Blashfield, William Merritt Chase, Thomas Hastings, Hamilton Wright Mabie, Brander Matthews, Thomas Nelson Page, Elihu Vedder, George Edward Woodberry, Kenyon Cox, George Whitefield Chadwick, Abbott Handerson Thayer, John Muir, Charles Francis Adams, Henry Mills Alden, George de Forest Brush, William Rutherford Mead, John W. Alexander, Bliss Perry, Abbott Lawrence Lowell, James Whitcomb Riley, Nicholas Murray Butler, Paul Wayland Bartlett, Owen Wister, Herbert Adams, Augustus Thomas, Timothy Cole.

Timothy Cole was elected a member in June. The annual meeting of the academy was held in Chicago in November, and several interesting addresses were made. At the end of the year there were two vacancies in the membership of the academy.

ACCIDENTS. See RAILWAY ACCIDENTS, and SAFETY AT SEA.

ACCIDENTS AND DISEASES. See LABOR LEGISLATION.

ACCIDENTS, COAL MINE. See COAL.

ACCIDENTS, COMPENSATION FOR. See LABOR LEGISLATION.

ACOUSTICS. See MUSIC, *Bibliography.*

ADEN. A British possession (part of the Bombay Presidency) in southwestern Arabia; an important coaling station and the centre of trade with Arabia. Area, 75 sq. miles (of the attached island of Perim, 5); population (1911), 46.165. Area of the protected territory, about 9000 sq. miles; population, 100.-000. The island of Socotra (1382 sq. miles, 12,000 inhabitants) is administered from Aden.

The total trade in 1911-1912 was £8,253,000; 1607 vessels called at Aden and 524 at Perim. The neighboring Arab tribes are subsidized by the British government, with which they have treaties. The political agent in 1913 was Major-General Sir James A. Bell.

ADMINISTRATION. See United States.

ADULTERATION. See Food and Nutrition, *passim*.

ADVANCEMENT OF SCIENCE, American Association for the. The sixty-fourth annual meeting of the association was held in Toronto, beginning December 29, 1912. About 500 members were in attendance. At the same time meetings of several societies affiliated with the association held their meetings. These included the Astronomical and Astrophysical Societies of America and the American Botanical Society. The executive council elected 280 members and 200 fellows. Members of the association were welcomed by Governor Slaton. The annual address was delivered by the retiring president, E. C. Pickering, and was entitled "The Study of the Stars." It was voted to admit the American Forestry Association as an affiliated society. The membership of the society in 1913 was about 8100. The following officers were elected: President, Charles W. Eliot; vice-presidents (section A), H. S. White, (B) Anthony Zeleny, (D) Albert Noble, (E) U. S. Grant, (F) Frank R. Lillie, (G) G. P. Clinton, (H) Clark Wissler, (K) R. M. Pearce, (L) Paul N. Hanus, (N) L. H. Bailey; general secretary, W. C. Worsham, Jr. The meeting for 1915-16 will be held in Toronto.

ADVENTISTS, Seventh Day. The chief distinctive feature of this body is a belief in the literal, personal second appearing of Christ. No specific date is set for this event. The seventh day of the week is observed as the Sabbath. The total number of communicants in the denomination in 1913 was 65,284. The churches numbered 1860 and ministers 534. There were 116 organized conferences, about 90 mission fields, about 90 advanced educational institutions, over 600 primary schools, 37 publishing houses and branches, and over 100 sanitariums and branches. The denomination publishes 125 periodicals, and issues publications in over 70 languages. Its work is carried on in about 85 countries, and it employs over 10,000 evangelists and institutional laborers. The total contributions for its work amount to about $2,500,000 a year. The headquarters of the denomination is in Washington, D. C., where in May, 1913, was held the quadrennial session which commemorated fifty years of organized work by the denomination. At this gathering, delegates and representatives from all over the world assembled.

Other Adventists. In addition to the Seventh Day Adventists there are several other bodies bearing the name of adventists. These have no formal connection with the Seventh Day Adventists. The largest of these bodies is the Advent Christian, which in 1913 had 26,799 communicants, 550 churches, and 528 ministers. The Churches of God in Jesus Christ had 2124 communicants, 62 churches, and 56 ministers. The Church of God had 611 communicants, 20 churches, and 32 ministers. The Life and Advent Union had 509 communicants, 12 churches, and 12 ministers. The Evangelical Adventists had 481 communicants, 18 churches, and 8 ministers.

ÆGEAN ISLANDS. See Greece; Italy; Turkey and the Balkan Peoples.

AERONAUTICS. Under this comprehensive title stands a review of significant events concerned with the navigation of the air, and the means used therefor.

Aviation

During 1913, a year in which the tenth anniversary of the first flight with a power-driven aeroplane was celebrated on December 17, there was widespread interest in aviation throughout Europe, evidenced by the attention paid to the remarkable long-distance flights made during the year, and to the remarkable exhibitions of Pegoud and his various imitators. These intrepid aviators, flying upside down, in circles and otherwise, in addition to furnishing thrilling spectacles demonstrated their ability to control and manœuvre the aeroplane under various conditions, proving also its safety in the hands of a competent pilot so long as it was maintained at sufficient height above the ground. Notwithstanding such interest there was, however, little progress toward general use of the aeroplane for practical purposes other than military. In the United States, doubtless owing to lack of government support and purchases of machines for the army and navy in large quantities, there was much less popular interest than in Europe.

As regards the more general application of the aeroplane a few attempts at carrying mails were made, but outside of war and navy departments there was but slight demand. In France, in fact, consternation was caused by the announcement that the war department had been carrying out the organization of a plant at Chalais-Meudon for building aeroplanes and that government machines would be constructed by it. The war department, however, abandoned the plan as not economical.

The powers had now seen the aeroplane in actual warfare as well as in manœuvres, and were planning aerial squadrons for future warfare. See Military Progress and Naval Progress.

On the technical side the chief developments of the year, aside from perfecting the motors on the score of endurance and reliability, were improvement as regards stability and especially automatic stability. This was measurably secured in the Dunne, an English machine, and in an Orville Wright machine.

Progress in 1913 was towards increased endurance, reliability, and stability, strikingly evidenced in the long distance flights, such as that of Brindejonc des Moulinais, who, notwithstanding storms, flew from Paris to Warsaw in ten hours and twelve minutes with but two stops, a distance of 933 miles at an average speed of 91.7 miles an hour. Almost equaling this was the flight of Stoeffler within the German Empire, where he covered a distance of 1522.36 miles in 24 hours, an average speed of 63½ miles an hour, yet in this competition eight other competitors covered over 1000 kilometers (631.37 miles). The flight of Garros from the Riviera to Africa across the Mediterranean Sea, making 550 miles in one continuous flight of nearly eight hours, was also an achievement of merit. And again, on October 30, the Bennett cup was won by Gilbert, who flew from Paris to Puertniz, Pomerania, a distance of 650 miles at an average speed slightly in excess of 124 miles an hour. Then, on November 24, the Russian, Vasselieff, flew from St. Petersburg to Moscow and back, 1118.5 miles, in 10 hours and 52 minutes. Such performances, and others discussed below, demonstrated the progress in aeroplane development as regards practical long distance flight as distinguished from high speed in fair weather.

Aeroplane Motors. During 1913 there was a general improvement in motors, which also involved an increase in size and power, inasmuch as there was a tendency on the part of aeroplane designers to cut down the area of supporting plane, or to arrange for increased weights. This general improvement was rather of detail than of principle, though there was considerable rivalry manifested by the various manufacturers, and the various military competitions provided opportunity for inventors of all kinds of motors for aeronautical purposes. The rotary type continued most popular, yet with the increased use of the hydro-aeroplane it was found to have disadvantages as compared with the fixed cylinder motor, since, like other air-cooled motors, it could not be protected from spray.

In connection with the development of the aeroplane motor it must be remembered that in 1907, it rarely exceeded 24 horse power, and sufficed to propel a biplane at the speed of 45 miles an hour, but in 1913 there was demanded a motor of 160 horse power, enabling a monoplane whose supporting area has been reduced to a minimum, to travel at a speed of 125 miles an hour. The tendency was rather to avoid experimentation and to employ the regular types of the most successful makers. The Gnome rotary motor maintained its preëminence, and a motor with 18 cylinders developing 200 horse power represented the leading achievement of the engineers of this company. Another motor of considerable vogue was the Le Rhone engine, upplied with a system of mechanically operated inlet valves which were not influenced by centrifugal effects. In this motor the high-resistance steel cylinders have liners of cast iron. For a motor developing 120 horse power the weight was 170 kilos (374.79 pounds), while other motors had been built whose makers claim the reduction of weight to one kilogram per horse power.

Paris Aero Show of 1913. This exhibition, held annually in the late autumn, served to illustrate the progress of the year, as the results of the most recent French experiments are usually presented. The show of 1913 was noteworthy for the absence of machines that showed a radical departure from existing types. Increased efficiency in machines that could fly at fairly high speeds with engines of small horse power was observed, but even here the results of design and study, coupled with experience, were in no way extraordinary. The supporting area of the high-speed machines was considerably reduced, while usually the engine power was increased. For example, the Ponnier machine of Vedrines had an engine rated at 160 horse power, but had a total width of supporting surface of only six meters (19.7) feet.

During the year the contest for supremacy between the biplane and the monoplane continued and the question was still open. All of the striking feats of flying reversed and looping the loop performed by aviators in the monoplane, which had given it an apparent advantage, were repeated with the biplane and the latter type continued to be preferred by the military authorities. An interesting biplane developed during the year had a lower plane with about one-third the length of the upper to which it was braced by very stout wooden struts, while steel wires were employed for bracing the ends. It had a short fuselage built of steel tubes and the body which carried the propelling machine was an independent unit being encased in sheet steel and attached directly underneath the upper plane with the engine and propeller just behind it, so that the fore part of the body with two seats provided an uninterrupted view for the pilot and the observer. The Borel monoplane was also driven by a propeller at the rear and thus was adopted for military work carrying a small Hotchkiss gun in front, but no other obstruction for the observer and pilot. The tendency to arm aeroplanes was illustrative of their adoption for military purposes and indicated that they were acquiring a combative position, so that in future wars fighting at close range between the aeroplanes of opposing armies was most probable.

Among the novelties of the Paris exhibition was the Paul Schmitt biplane, where the planes were carried on a steel frame hinging on an axis passing through the body so that the angle of incidence could be varied and the planes tilted backwards and forwards. This biplane had three seats and had rendered a good account of itself in previous trials. An advance in construction was noted in nearly all the machines exhibited and greater care was being manifested in the building. A new material for coating the fabric of the supporting planes was used which gave a semi-transparent appearance so that the machine was almost invisible. It was hoped by certain critics that instead of cloth fabrics wood or preferably steel could be used for the supporting planes, just as for the frames steel and other metals were becoming the best practice. The tendency to reduce outside friction by soothing the external lines and building the fuselage in a conical form was further shown.

Sjkorsky Aeroplane. The largest flying machine yet constructed was given a trial during 1913 by its designer, a Russian, named Sjkorsky, and flew for over an hour with seven passengers at St. Petersburg on August 1. This huge biplane resembled in a general way the well-known biplane of H. Farman, but had a span of 28 meters (91.86 ft.) and a length of 20 meters (65.6 ft.), affording a supporting surface of 120 square meters (143.52 square yards). The lower plane was somewhat less in span—18.04 ft.—than the upper plane. There were mounted on the lower plane four motors, each of 100 horse power and driving a propeller 2.6 meters (8.5 ft.) in diameter. These four propellers were tractor screws, which were rotated in front of the supporting surface, and in the centre there was an enclosed cabin for the pilot and passengers. The starting and alighting gear consisted of four landing skids and pneumatic-tired wheels so that the machine, which weighed with its passengers over 7000 pounds, could land and rise in safety. The tail consisted of a single surface and elevator combined, above which were two vertical rudders, while the supporting surfaces have flaps, or ailerons. A speed of 190 kilometers (56 miles) an hour was attained and 12 passengers were carried aloft for over 15 minutes. The new biplane was purchased by the Russian war ministry and it was stated that similar machines were to be built for military service. The chief difficulty experienced was in launching and alighting, as a run of about 200 meters (656 ft.) was required before the machine could get into the air and this obviously involved a suitable ground surface. Later improvements in the running gear were effected so that greater facility was obtained. Not content with this machine the Russian designer later in the year constructed a machine with a carrying capacity of 20 persons, and with sleeping accommodations in the cabins. The machine on its trial trip was said to have risen from the ground after a run of 100 yards and to have flown and manœuvred readily.

The Burgess Military Tractor, supplied to the United States army in 1912, was duplicated in 1913 and three additional machines were ordered for the United States Army Signal Corps. This machine, known as an enclosed body tractor, carried the motor forward in a fuselage where the operator and observer sit in tandem. It had a spread of wings of 43 ft. 6 in. and a length over all of 27 ft. 9 in., weighing 1284 pounds. This machine was in military service almost constantly in the army during part of 1913, and on March 31, 1913, Lieutenant Milling, U. S. A., established an American endurance record with a passenger by a cross-country flight from Texas City to San Antonio, a distance of 236 miles, without stop, at a speed of a little over 70 miles per hour. At San Antonio Lieutenant Milling remained in the air for over an hour longer, making a record of four hours and twenty-two minutes in the air, and on the following day he returned to Texas City from San Antonio in three hours and fifty minutes.

The Wright Automatic Stabilizer. In the construction of the Wright biplane but few radical departures from the original type had been made. The more important of these were the adoption of an "open work" tail and rear elevator, and the wheels for the chassis. In the decennial year of the invention an automatic stabilizer was patented and applied to the Wright machine which operated to secure both transverse and longitudinal stability. A stabilizing pendulum was employed for the first of these objects, which by means of compressed air and a piston worked a system of interconnected cables connected with the warping mechanism and the vertical rudder. The motion of the pendulum could be checked so that erratic swinging was eliminated, but, at the same time, the action was positive and the slightest puff of wind would be counteracted immediately. Longitudinal stability was achieved by an identical compressed air servomotor which operated a small plane mid-air between the two main supporting planes, but at a different angle. This device was located directly in front of the main planes, but otherwise it acts in the main like a non-lifting tail, though when the air pressure varies as the main planes change their angle it will resist such a change through machinery which sets in operation the horizontal rudder.

Another mark of progress made during the year with the automatic control of aeroplanes was the Moreau machine, which on September 24 successfully competed for the Bonnet prize by flying half an hour without the aviator's touching the levers. This test was made in the presence of Lieutenant Lafon and during a strong wind, so that the monoplane rolled and pitched, but returned automatically to a level keel.

London Daily Mail Prize for Transatlantic Flight. In the spring of 1913, Lord Northcliffe, the proprietor of the London *Daily Mail*, offered a prize of $50,000 for the first aeroplane flight across the Atlantic Ocean in either direction in 72 hours. The conditions of the competition required a flight between England or Ireland and any point in the United States, Canada, or Newfoundland, and permitted the aviator to alight upon the surface of the water and take on fuel, if this could be arranged for. Aviators of all nations were invited to compete and much interest was aroused among designers and air pilots. From Newfoundland to Ireland is a distance of 1800 miles so that a speed of 60 miles an hour must be maintained for 30 hours. This would involve a motor of from 150 to 200 horse power whose reliability was demonstrated beyond question. Fifty-hour continuous runs had been recorded for various airship motors, and sufficient economy in fuel had been obtained so that the question of fuel supply, while serious, was not prohibitive. It was thought that a duplicate power plant would be a possible solution of the problem and that possibly some form of hydro-aeroplane could be employed, particularly as such a craft could come to the surface of the water for repairs, or adjustment, in case of the stopping, or failure, of the motor.

The Bennett Cup Competition. The 1913 race for the James Gordon Bennett trophy was remarkable on account of the speeds made and records broken, rather than as an international competition, as of the four competitors, with the single exception of Crombez, a Belgian, all were Frenchmen. The competition was held at Rheims on September 29 over a course of 200 kilometers (124 miles), including 20 circuits of 10 kilometers each. New world speed records for an aeroplane with pilot alone were made for distances from 10 to 200 kilometers and the time of the winner, Maurice Prevost, for the 124.777 miles was 50 minutes, 45⅗ seconds, or an average of 125 miles an hour, which was the fastest speed yet attained in a flying machine, being more than two miles a minute. Prevost used a Deperdussin aeroplane with a Gnome 106-horse power motor.

The second in the competition, Emil Vedrines, whose time was 1 hour. 5⅘ seconds, employed a Ponnier aeroplane with a Gnome 160-horse power motor, while Gilbert, and Crombez, the Belgian, who were third and fourth in the competition respectively, both used Deperdussin aeroplanes, the former with a Le Rhone 160-horse power motor and the latter with a Gnome motor of the same horse power. The weather was ideal for the competition, and Prevost, taking advantage of this, cut down the surface of his wings until they were only about 96 ft. square. Such an arrangement, while making high speed possible, was not conducive to safety, however. The following table summarizes the new records:

World's Speed Records. Pilot Alone. Prevost (Deperdussin Aeroplane—Gnome 160-Horse Power Motor). Rheims, September 29, 1913

10	kilometers	(6.2 miles),	2 min. 56 3-5 sec.
20	kilometers	(12.4 miles),	5 min. 54 1-5 sec.
30	kilometers	(18.6 miles),	8 min. 52 1-5 sec.
40	kilometers	(24.8 miles),	11 min. 50 1-5 sec.
50	kilometers	(31 miles),	14 min. 48 1-5 sec.
100	kilometers	(62 miles),	29 min. 40 sec.
150	kilometers	(93 miles),	44 min. 38 sec.
200	kilometers	(124 miles),	59 min. 45 3-5 sec.

Long Distance Flights. A notable flight across Europe was made by Brindejonc Des Moulinais, who previously on February 25 had flown in a monoplane from Paris to London, 375 miles in 3 hours and 5 minutes. This more extended flight was from Paris to St. Petersburg and back, returning by way of Stockholm and Copenhagen, a distance of about 3000 miles, and was made in the interval between June 1 and July 2. A continuous flight from San Raphael, France, to Bizerta, Tunis, a distance of 558 miles, was made in a Morane aeroplane on September 23 by Roland G. Garros, the French aviator, who in the previous year had made the trip over sea between Tunis and Sicily, a distance of about 160 miles. The 1913 trip was made without the use of torpedo boats to aid the aviator in case of accident, who moreover for the trip had removed the pontoons from his aeroplane.

The last important long-distance flight of the year was completed on December 29, when Jules Vedrines reached Cairo, Egypt, after a flight of about 3500 miles. This aviator had originally left Paris with the intention of making a flight from France to Peking. On December 2 at Belgrade, Servia, which he had reached on his journey, he received a message that Pierre Daucourt, who had left Paris on October 22 on a flight from that city to Cairo, had met with an accident at Eskisher, in Asia Minor, at the beginning of an over-sea flight to Egypt in which his aeroplane was wrecked. Vedrines was urged by the Paris Aero Club to complete this flight in order to give to France the credit for the first trip between Paris and Cairo. The journey from Belgrade to Jaffa was successfully accomplished and the last installment, a distance of 250 miles to Cairo and Heliopolis, was successfully negotiated. His trip across Europe was attended by considerable excitement, as he flew over fortified places in Germany and Servia and his was the first aeroplane to arrive at Beirut.

American Aerial Derby. Five aviators participated in a flight on October 13, over a course starting at Oakwood Heights, Staten Island, to and around Manhattan Island and return. The distance was estimated roughly at 60 miles and the competition was held in spite of a stiff northwest wind which was blowing at the rate of 43 miles an hour. The winner was W. S. Luckey, in a 100-horse power Curtiss biplane, whose elapsed time for the course was 52 minutes 54 seconds. The second place was taken by Frank Niles in a 100-horse power Curtiss biplane with a record of 56 minutes 55 seconds, while C. Murvin Wood, in an 80-horse power Moisant monoplane, was third with a record of 58 minutes 15 seconds. The fourth and fifth places were taken respectively by J. Guy Gilpatrick in an 80-horse power Sloane-Deperdussin monoplane and Toney Jannus in a 75-horse power Benoist biplane. There were cash prizes and silver cups for the first three aviators.

Michelin Cup. Several notable performances were made in the contest for the International Michelin Cup, awarded to the aviator who covered the greatest distance in any number of consecutive days flying at least 50 kilometers (31.0685 miles) a day. Finally Helen won the cup with a flight of 9996 miles in 30 consecutive days, or a much greater distance than that between the North and South poles. If Helen had received credit for nine days' flight which he lost by having to stop before reaching the timekeeper he would have flown 20,787 kilometers (13,537.79 miles) in 39 consecutive days.

Height Records. The height record was increased during the year by Perreyon in a 160-horse power Blériot monoplane, who rose to a height of 19,685 ft. above the earth, or about 3¾ miles. This performance was eclipsed during the last week of December by Legagneux, the French aviator, who on December 27 at Frejus climbed in a monoplane to a height of 20,608 feet in 1 hour and 40 minutes. M. Legagneux had held the record of 17,873 feet made on September 17, 1912. The height record for two passengers in addition to the aviator was raised to 11,740 feet by von Blaschke in Austria on June 29, 1913, while during the year all records with passengers up to six in number were broken.

During the year 1913 much attention was paid to remarkable performances in the air by various aviators. Notable among these was the looping the loop in a monoplane by the French aviator, Pegoud, who, using a Blériot monoplane, on September 2 was able to show that he could fly upside down, dive headlong, and rise vertically, forming a complete loop, roll over sidewise, and slide tail first backwards and make a quick recovery so as to dive head-first to a normal position. Pegoud's achievements were straightway followed by other aviators, both in Europe and the United States, notable among whom was Lincoln Beachey who on December 25, "looped the loop" five consecutive times from a height of 750 feet and turned a double loop at a height of but 300 feet.

Among the interesting applications of the aeroplane was the inauguration of a regular aerial mail service in France on October 15, when mails were carried from Paris to Bordeaux to catch the West Indian boat with a considerable saving of time. Later in the year an experimental aerial transport of mail across the desert of Sahara was being planned by the French National Aerial League. The route extended from Oran, Algeria, to Timbuctu, a distance of 1400 miles and the flight was designed to show the practicability of a regular service. In the United States an interesting application was made of the aeroplane in its use for patroling the right of way of an electric transmission line in California. This was attempted on the line of the Great Western Power Company of San Francisco, which extends from Big Bend on the Feather River across sloughs and marshes of the Suisun Basin, and finally over the Coast Range to Oakland, a distance of 160 miles. As much of the marsh is impassable, great delays are caused when breaks occur in the inaccessible locations, and by the new arrangement a lineman accompanies the aviator so that where a break is noted he can land and make the necessary repairs. The machine used was of the modified Wright model and a speed of 40 miles per hour was obtained and, in addition to the aviator and lineman, a kit of tools for the latter is carried. A portable telephone was also used so that connection could be made with headquarters in case of a serious break requiring more attention than the traveling lineman could give it. Two trips a week were planned and this form of inspection was begun on November 20.

HYDRO-AEROPLANES

The second international annual competition of hydro-aeroplanes was held at Monaco beginning April 3, 1913. Sixteen machines qualified for the competition and the meeting was interesting as showing the development made in aeroplanes leading to increased sea-worthiness, for it was required that hydro-aeroplanes must perform satisfactorily on the surface of the water as well as in flight. Early in the meeting a heavy gale prevented any flying and required the hydro-aeroplanes, with two exceptions, to seek shelter. The Deperdussin hydro-aeroplane, of Prevost, and the foldable wing monoplane of de Marcay were able to ride out the storm at their moorings. The competition was divided under six different heads. First, starting from a stationary position on the water with the motor stopped; second, altitude test to show the ability of the machine to rise to a height of at least 500 meters (1640 feet) and return to the water in less than thirty minutes; third, volplane test in which the plane having risen to the height of at least 100 meters must shut off power and glide to the surface; fourth, a handling test where the machine must be brought to the crane of a ship, or pier, and fastened to the same so that it can be raised and lowered without damage; fifth, towing test where the hydro-aeroplane must be towed by a rowboat, or motorboat; and sixth, a navigable test where a course of 6¼ kilometers must be covered under the aeroplane's own power without leaving the surface of the water. The race for the Jacques Schneider international aviation cup for hydro-aeroplanes was held on April 17, and was won by Maurice Prevost on his Deperdussin monoplane equipped with a 160-horse power Gnome motor. In addition to the cup there was a cash prize of $5000 and on account of the number of contestants representing different countries, the race partook of an international character. The course was 150 nautical miles, and while there were numerous motor failures which detracted from the contest as such, nevertheless it showed both the safety of the hydro-aeroplane and its utility.

The hydro-aeroplanes represented naturally carried out the fundamental ideas of their designers irrespective of their application to oversea flight. They were well engined and showed considerable strength. In the float equipment, however, there was considerable diversity and much of an experimental nature. The Breguet biplane had but a single float, while in the case of the other machines two floats were used, either cylindrical or flattening on the bottom. There is always a small float at the tail of the machine whether one, or two, are employed under the planes themselves. If the floats are flat and scow shaped they are made of wood or veneer, but with cylindrical floats metal is employed.

NEW WRIGHT HYDRO-AEROPLANE. In 1907 the Wright Brothers conducted early experiments on hydro-aeroplanes on the Miami River, Ohio, but the complete development of this type of aeroplane was reserved until the year 1913 when Orville Wright succeeded in bringing out a new type known as the "C-H." Mr. Wright's experiments were concerned with a hydro-aeroplane adapted to flying from small inland rivers and lakes rather than with a machine for rough water flying. In other words, he aimed to produce a craft more air-worthy than any yet adopted, for he realized that perfect flight must be possible with the trees and high banks usually found on inland rivers and lakes which otherwise would be a cause of danger to an aviator. The new Wright hydro-aeroplane was a biplane following the usual Wright model with a large centre float and a rear float of novel design and construction. The span was 38 feet, chord 6 feet, and the surface area was about 440 square feet. The weight, empty, is 920 pounds, exclusive of the weight of the centre hydro-aeroplane float which is 240 pounds. This was a single pontoon, 10 feet in length, 6 feet wide, and 10 inches deep. The power was supplied by a new Wright 6-cylinder 60-horse power motor, driving two propellers, and all the details have been worked out with special care as regards the balancing and arrangement of planes and floats. It was possible to rise almost instantly from the top of the water and in less than 10 seconds from cranking Mr. Wright was able to leave the surface.

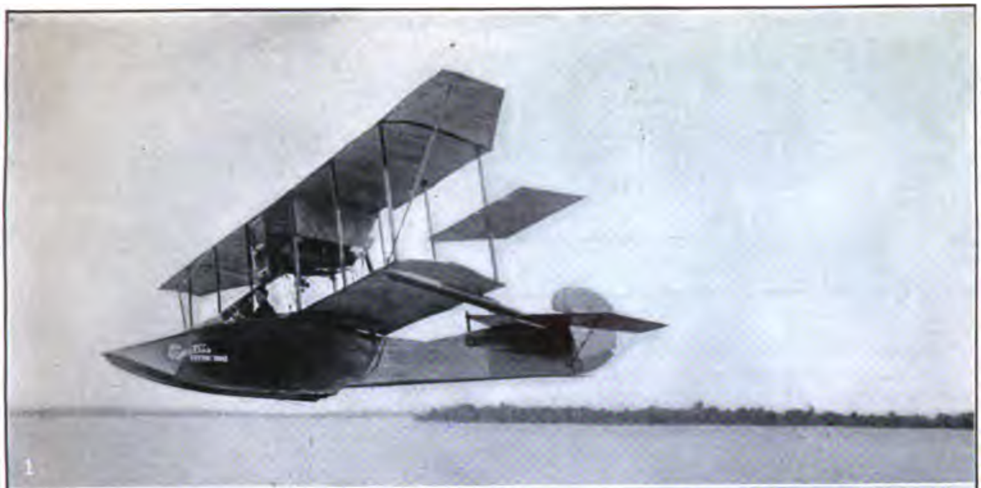
BURGESS NAVAL FLYING BOAT. To meet the requirements of the United States navy for a flying machine capable of carrying a large load at high speed a new type of flying boat was designed by W. Starling Burgess during 1913 and was tested and accepted by the United States government. Ease of manœuvring, both in the water and in the air, and facility of dissembling and dismantling were elements in the specifications. The hull, power plant, and main surfaces each formed separate units. Among the innovations were the triangular arrangement of wing struts allowing the upper plane to be staggered forward of the lower plane, thus increasing its efficiency, and a hinging arrangement of the rear diagonal strut so that the upper and lower wing surfaces, while permanently attached to each other, could be folded together for dissembling. The boat was in two sections, the front scow shaped and fastened to the rear section so that they could be easily and quickly separated for shipment, while the power section was arranged so that the engine and its stand could be removed from the boat.

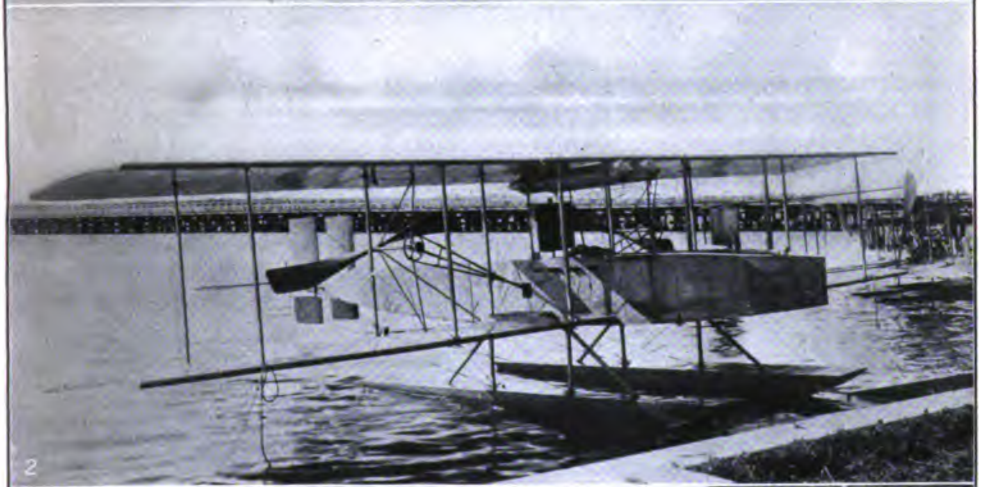
The principal dimensions of the Burgess naval boat were as follows:

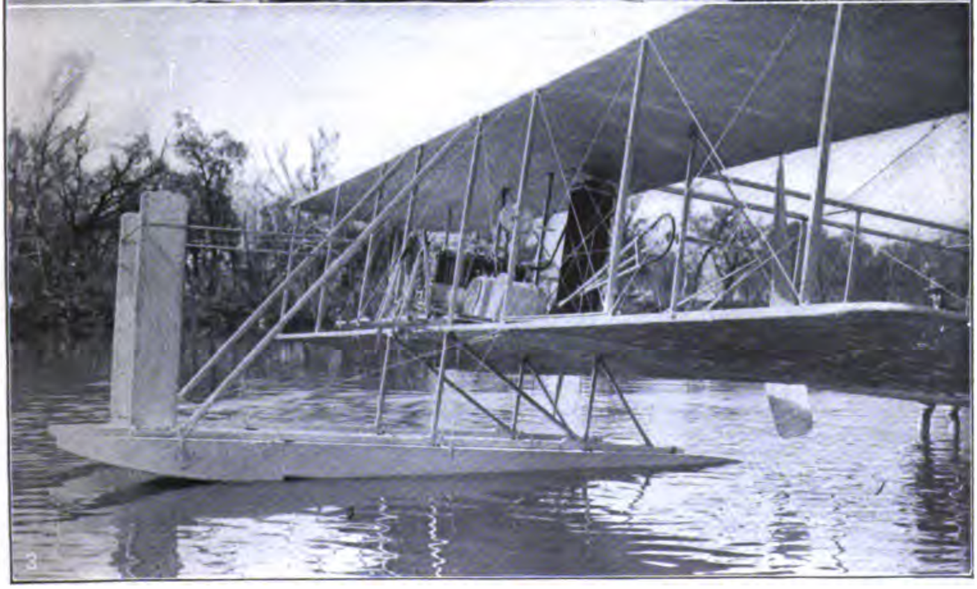
Spread of upper wings	43 feet
Spread of lower wings	36 feet
Depth of wings....................	5 feet, 6 in.
Area of supporting surface	397 square feet
Length over all	31 feet
Length of hull...................	29 feet, 6 in.
Height...........................	8 feet, 10 in.

In the acceptance test sufficient stability to provide for riding adrift safely in a 20-mile breeze in open water was required and this was fulfilled, as well as the stability to carry sufficient fuel and oil for a flight of four hours and a 400-pound useful load in addition. The speed requirement of 55 miles per hour with full

HYDROAËROPLANES







1. CURTISS FLYING BOAT
2. BURGESS COAST DEFENSE HYDROAËROPLANE OF U. S. ARMY SIGNAL CORPS
3. WRIGHT HYDROAËROPLANE, MODEL C—H.

load was accepted in the acceptance test when a mean speed of 58.4 miles was developed in an irregular 13-mile breeze. For the endurance test a flight of one hour and nine minutes was made during which 58¾ pounds of gasoline were consumed.

The flying boat answered the requirements of rising from the water with full load in a calm during a run of not more than 1500 ft. by rising in less than 1400 ft. and was able to climb to an altitude of 1500 ft. at the rate of about 132 ft. per minute, which also was in excess of the specification requirements. Gliding was also successfully accomplished by the machine's gliding from 500 ft. to a distance of approximately 2475 ft. in a five-mile breeze. For short runs of light loading a speed of over 65 miles an hour was developed. The tests were made over a five-mile triangular course in a wind that varied from six to ten miles per hour and were made from May 13 to 17.

The Burgess Company and Curtiss, of Marblehead, Mass., also built a coast defense hydro-aeroplane for the United States Signal Corps which was delivered on January 20, 1913. This hydro-aeroplane had a long enclosed body with seats for aviator and observer along a fore and aft line with the power plant located amidships in the cock-pit behind the crew. Two propellers were driven from a six-cylinder Sturtevant motor by a chain transmission and there were an elevator and double rudder. The principal dimensions of this hydro-aeroplane are as follows:

Spread of wings	39 feet, 10 in.
Length over all	31 feet, 4 in.
Length of enclosed body	29 feet, 7 in.
Height from bottom of hull	9 feet, 6 in.
Depth of wing	6 feet, 3 in.
Area of main surfaces	484 square feet
Weight, empty	1500 pounds

The floats, or hydroplanes, were two in number, made of mahogany reinforced by copper. They were 22 inches in beam, 17 feet 2 inches in length, and had a maximum draft of 9 inches. This hydro-aeroplane was subjected to speed and endurance tests during January, 1913, and developed a speed of 59 2-10 miles per hour over a measured course. The engine which was subjected to an endurance test in the air of 2 hours and 16 minutes continuous flight, performed successfully. The weight carried on the altitude test was 651 pounds, independent of the fuselage and the machine itself.

During the year a large hydro-aeroplane was built in France by Collieux for M. Jeansson and was tested during the summer. It was 53 ft., 6 in. in length over all and weighed complete 9460 pounds. It was of biplane form with two sets of planes, one behind the other, mounted upon a 22-ft. hull, the propeller being placed between the two sets of planes. The rear plane had a spread of 78.6 feet, while those in front were from 15 to 18 ft. less. Ailerons were fitted to the upper rear plane to control the transverse stability. In addition to the main pontoon there were cylindrical floats between each end of the main biplane. There were two 230-horse power Chenu six-cylinder engines placed side by side behind a two-bladed 14-ft. 5-in. propeller. While this waterplane was not completed in time for the competition at Monaco, yet it was thought to present features of design that would prove useful in long over-sea trips.

DIRIGIBLE BALLOONS

The record of the year with regard to dirigibles was one notably of achievement, but also of misfortune and catastrophe. At the same time, from these shocking disasters much was learned, especially in the case of the latest German dirigible, *L. II.*, whose destruction through an explosion is noted below. The error of design causing this accident was one that could be remedied without the slightest trouble and a repetition could be guarded against. The largest German dirigibles at the end of the year had beyond question sufficient capacity to cross the Atlantic, as a maximum speed of between 55 and 60 miles an hour was obtained, and adequate supplies of food and fuel could be transported. In this connection it is interesting to consider how step by step the range of the airship had increased. On June 9, 1913, the seventeenth Zeppelin airship *Saxon* made a trip from Baden-Baden to Vienna, a distance of 435 miles in eight hours' time, or an average speed of 54⅓ miles an hour. The airship on this journey was under the direction of Count von Zeppelin himself and carried twenty-four passengers on a visit to Emperor Francis Joseph of Austria. They left Baden-Baden at three in the morning and arrived at Vienna at eleven, or in about one-half of the time required by an express train for the journey. Notwithstanding stormy weather on the following day a successful return trip was made to Friedrichshafen.

ZEPPELIN AIRSHIPS

LOSS OF THE "L. 1." The great interest aroused during the year in the Zeppelin airships on account of their extensive use and their apparent continued success was somewhat disturbed by two disastrous catastrophes in Germany, in which naval dirigibles were wrecked and their crews perished. The first attempt to use a dirigible in regular sea service by naval officers was with the Zeppelin airship *L. I.*, which, since its first ascent from Friedrichshafen on October 7, 1912, had been in use for nearly a year in the German navy, and had made frequent trips. On this occasion, being equipped with wireless apparatus, searchlight, and machine guns, together with supplies, there was carried a load greater than was originally intended. The *L. I.*, 565 feet in length and 50 feet in diameter, and driven by three Maybach motors with an aggregate of over 500 horse power, was capable of a speed of 52 miles an hour. It had a displacement of 22 tons and the 18 separate gas chambers contained 776,000 cubic feet of gas. This airship was destroyed during the naval manœuvres of the German high sea fleet on the afternoon of September 9, 1913, twenty nautical miles to the northwest of the island of Heligoland, and 15 members of its crew of 22 men perished. It had left the harbor of Hamburg at 1:30 P. M. to participate in the night manœuvres of the German fleet. Starting out from its anchorage in bright sunshine, the airship put to sea and soon encountered rain and stiff winds. As a result the gas shrank, decreasing the buoyancy of the balloon, and the moisture deposited on the envelope and the hull added greatly to its weight. It was impossible to discharge the ballast and lading with sufficient speed, and with the onset of a heavy gust which struck the airship amidships all efforts at manœuvring in the face of the severe wind were fruitless. The airship was hurled down on the waves and struck the raging sea while running at high speed so that the impact crushed the bows, while the waves soon destroyed each single gas compartment, which was torn loose from the aluminum frame. Among the officers and crew who were lost were the commander, Captain Hanne; Captain Metzing, commander of the marine airship *Dwiseen*, and Baron von Maltzahn.

Wreck of "L. II." As a result of this accident more interest attached to the performance of the Zeppelin *L. II.*, a later construction for the German navy, which represented the most recent developments in this class of huge dirigibles, the aim being to provide increased "weatherworthiness." The *L. II.* had a displacement of 29,337 cubic yards, a length of 487 feet, and a beam of 50 feet. Its balloon carried three cars, the third being an innovation, with the aim of a more even distribution of the weight. The third car was used only for navigating and contained the wheelhouse, chartroom, and other equipment. The passageway connecting the three cars was located in the interior of the hull and the cars themselves were placed nearer to the hull than in previous airships. The *L. II.* was driven by four separate engines arranged in groups of two in each car, and by the use of Maybach motors with a maximum of 225 horse power each, a total of 900 horse power for the new ship was developed.

It was the hope of the designers that this airship might cross the ocean from Europe to America in safety and the first trial trip proved entirely satisfactory. Whatever hopes in this direction were held, however, were rudely shattered by the destruction of the *L. II.*, which, on October 17, 1913, exploded and burned in mid-air, with the loss of the entire ship's company, twenty-eight officers and men, including members of the admiralty board who were conducting official tests of the airship for the government. This frightful disaster was due, according to the expert report of Dr. Eckener, to the ignition in the forward engine car by a spark, or otherwise, of a layer of explosive air hydrogen mixture which enveloped the car. This was caused, in part, by the peculiar construction of the vessel, which Count Zeppelin did not consider as safe as his earlier constructions. A dead space was formed behind the screens in which the air and hydrogen accumulated.

From a published report of the work of the Zeppelin passenger airship *Victoria-Louise* it was possible to discuss the economic possibilities of aerial transportation by a large dirigible. Between March 4, 1912, and November 26, 1913, this vessel made 400 trips, covering all told a distance of 29,413 miles and aggregating 852 hours. During this time she carried 8551 passengers, and used 18,550 gallons of gasoline, 15,276,000 cubic feet of hydrogen, and 2123 gallons of lubricating oil. Counting these items at their current values in Europe, a writer in the *Engineer* (London) argued that the running charges during the period covered must have amounted to: Gasoline, £1391; hydrogen, £7638; oil, £472; total, £9501. The cost of fuel oil and gas thus amounted to £11 3*s.* per hour of flight. The average speed was about 35 miles an hour, and the average number of passengers carried about 21. Hence, per passenger miles, these three items of the running charges represented an expenditure of over 3½*d.* Add to this, says the writer, the wages of the crew, the interest on the capital, and the depreciation of the airship and its sheds, and one can well believe that aerial journeys of this nature cannot hope to rival other modes of transport on a financial basis.

Since the beginning of the passenger service in June, 1910, up to the end of September, 1913, seven Zeppelin dirigibles had been employed in passenger service, and out of 1218 days the total time spent in the air figured out 100 entire days, in which a distance of 81,375 miles was made, or about three times around the globe, and 23,271 passengers were carried without injury.

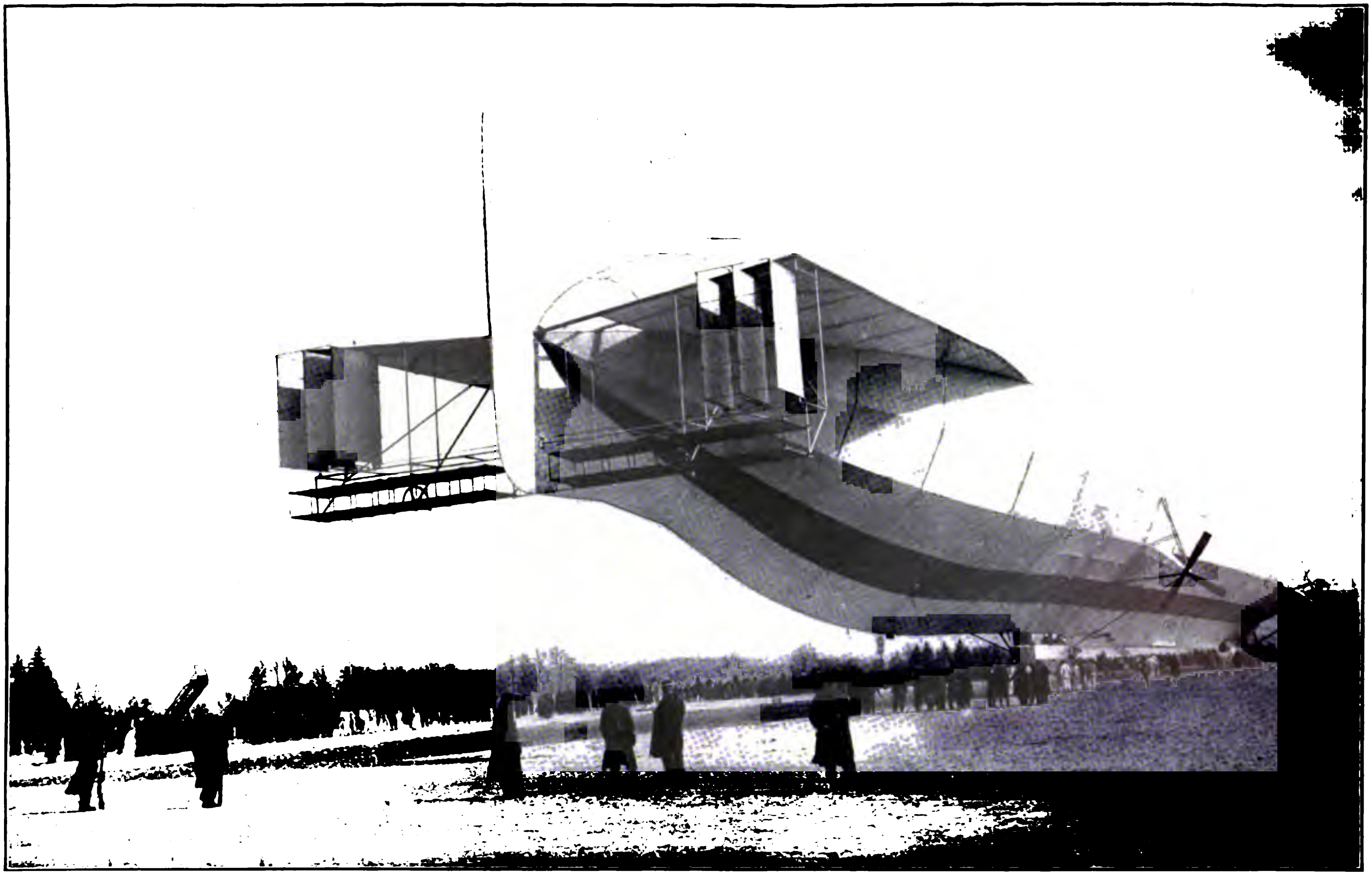
In addition to the Zeppelin airships the German army had other patterns, and the second Schütte-Lanz airship was completed during the year 1913. It contained 847,000 cubic feet of gas and carried five cars, one in front for the commander and four for the crew, two of the latter being loosely suspended in the centre line fore and aft and the other two rigidly fixed on each side of the centre line. Three Maybach and one Daimler motors drove the ship, each motor being connected with two propellers. The estimated speed was 45 miles per hour. The *Schütte-Lanz I.* was wrecked by being torn loose from an anchorage at Schneidermuhl on a trip from Berlin to Königsberg in July. Descending for repairs, the dirigible was struck by a violent gust of wind and carried away from its fastenings and from the grasp of the soldiers summoned for the emergency. The airship was borne aloft for nearly an hour, when it was driven to the earth and demolished by collision with a forest.

The Parseval airship, one of the most successful to be developed in Germany, continued to be improved, and a dirigible made in 1913 by the Berlin Airship Company at the Berlin shipyard was the seventeenth of this type. It was like the others of this type, flexible, but with a more slender envelope, and it was driven by two propellers placed to the right and left and above the suspended car. Each propeller had four blades of elastic steel 1-25th of an inch thick and was driven by a six-cylinder Maybach motor, the group having an aggregate power of from 300 to 320 horse power.

Spherical Balloons, or Aerostats

The distance record for non-dirigible balloons made by Bienaimé, the French aeronaut, in 1912, of 1361⅝ miles, was broken by E. Rumpelmayer and Mme. Goldschmidt, who made a flight of 1503 miles from Lamotte to Eharkob, Russia, March 19 to 21. This in turn, as well as the duration record, was exceeded on December 13 by Kaulen in the German balloon *Duisburg*, with two passengers. Starting from Bitterfield in Prussian Saxony, he made a flight of 1740 miles in 87 hours, landing at Perm on the border between European and Asiatic Russia.

A notable altitude ascension was made on May 28, 1913, when MM. Bienaimé, Jacques Schneider, and Albert Senouque ascended from Lamotte-Breuil in the balloon *Icare* to an altitude of over 10,000 meters, or nearly 33,000 feet. The aviators made use of oxygen respiration apparatus and were bundled up to resist the intense cold at the extreme altitude. This



THE GERMAN MILITARY DIRIGIBLE ZEPPELIN AIRSHIP "Z-4"

FORCED TO MAKE A LANDING IN FRENCH TERRITORY NEAR LUNÉVILLE IN APRIL. THIS AIRSHIP WAS TYPICAL OF THE GROUP OF LARGE PASSENGER-CARRYING DIRIGIBLES WHICH WERE IN SERVICE IN 1913

ascent for altitude shares the honors with one made in 1901 by Suring and Berson at Berlin, in which an altitude of 10,800 meters (34,433 feet) was attained.

GORDON BENNETT CUP FOR BALLOONS. The international race for spherical balloons or aerostats was started from Paris, October 12, 1913. By reason of the cup having been won in the previous year by the French balloon *Picardie*, of M. Bienaimé, in 1913, there were eighteen entries and the competition was won by the American balloon *Goodyear*, with Ralph H. Upson, pilot, and Ralph A. D. Preston, aide. The distance made was about 500 miles. The English Channel was crossed and a landing was made on the northeast coast of England, near Flamborough Head on the Bompton Cliffs, the descent being due to bad weather conditions. The second in the competition was also an American balloon, the *Uncle Sam*, of Captain H. E. Honeywell, which made a flight of about 282 miles, landing on the French coast south of Brest. The third was the Italian balloon of Agostini, which also descended on the French coast. It is apparent from the above statement that the 1913 competition in interest and achievement ranked far below those of previous years.

THE NATIONAL BALLOON RACE for spherical balloons in the United States for 1913 was started from Kansas City, Mo., July 4, and was won by the balloon *Goodyear*, R. H. Upson, pilot, R. A. D. Preston, aide. The other contesting balloons and their pilots were: *Kansas City II.*, John Watts; *Kansas City Post*, H. E. Honeywell; and *Million Population Club*, Captain John Berry. The successful balloon, the *Goodyear*, which started at 7:21 P. M., descended 7 miles east of W. Branch, Mich., at 3:17 P. M. of the following day, having made a distance of 647½ miles.

THE LANGLEY AERODYNAMICAL LABORATORY. A fitting memorial to Professor S. P. Langley, for many years secretary of the Smithsonian Institution and a pioneer worker in modern aeronautical science, was the reopening of the Langley Aerodynamical Laboratory, authorized by the board of regents of the Smithsonian Institution, at a meeting held on May 1, 1913, together with the appointment of an advisory committee and the addition of other laboratories and facilities as means were available. The board of regents made an appropriation of $10,000 for the initial year and promised an appropriation of $5000 annually for five successive years. Dr. Alfred F. Zahm, the well-known authority on aviation and aeronautics, was made recorder of the advisory committee, with an office in the Smithsonian Building, and it was intended to coördinate and make available for scientific and general purposes the facilities of the United States government for aeronautical research in such departments as the army and navy, the weather bureau, and the bureau of standards. The new laboratory may exercise its functions for the government in any of its departments, as well as for various individuals who shall defray the expense accruing from any such services rendered, and has as its object the promotion of research and experiments to increase the safety and effectiveness of aerial locomotion. It contemplated a series of publications and an annual report which would give the results of the researches at its laboratory and the general and sub-committees interested in its control. It is to be remember that much of Dr. Langley's experimental work was carried on in the laboratories of the Smithsonian Institution and that there were built the large model aerodrome, which flew successfully, as well as his later man-carrying aeroplane. While the Langley laboratory started in somewhat modest form, yet it was hoped that its usefulness and facilities would develop so that it would take a rank with the national and private laboratories of Europe.

UPHOLDING THE WRIGHT CLAIMS. Progress in the litigation to determine the validity of the Wright patents was marked in the decision handed down on February 27, 1913, by Judge John R. Hazel, of the United States District Court of the Western District of New York, by which the claims of the Wright Company in its suit against the Herring-Curtiss Company and Glen H. Curtiss were in large part sustained. This by no means settled the matter, as the judge stated that a stay of proceedings would be granted pending the appeal which the Curtiss interests might undertake. It will be recalled that an injunction in this matter was first granted on January 23, 1910, on the score of an infringement of the Wright patent, and a few months later the Federal Circuit Court of Appeals held that the preliminary injunction was not warranted by the proof. The 1912 decision came after a trial of the merits of the case in court, and while it did not finally settle the question, it was a substantial victory for the Wright interests, which was further emphasized by favorable court decisions in Europe also. The decision dealt in detail with the history of the development of the art of aviation and of the patents that have marked its progress.

The main question at issue was, were the Wrights the first to discover that the vertical rudder of a flying machine must be used in conjunction with wing warping devices, or ailerons, to prevent the machine from spinning on the vertical axis? In the opinion of the court the Wrights were entitled to the invention of this discovery, and the Curtiss claim infringed the patent. Of the eighteen claims made in the Wright patent, four claims were held to be infringed.

The conclusion of Judge Hazel's decision was as follows:

"The defendants have embodied in their aeroplane the various elements of the claims in suit (Nos. 3, 7, 14, and 15 of the Wright patent). While it is true, as pointed out herein, that the defendants have constructed their machine somewhat differently from complainant's and do not at all times and on all occasions operate the same on the Wright principle, yet the changes they have made in their construction relate to form only. They have constructed their machine so that it is capable of restoring equilibrium in substantially the same way as is complainant's machine, and the evidence is that, on occasions, they use the vertical rudder not only to steer the machine, but to assist the ailerons in restoring balance. . . . The questions of law in the case are important, but the questions of fact are controlling, and in view of the novelty of the claims and their scope, the question of the infringement is resolved adversely to the defendants as to the claims which are the subject of this controversy." The court then provided for entering a decree, but, as stated, granted the Curtiss interests a stay of proceedings, pending appeal, which was duly taken, and a decision was expected early in 1914.

That aviation presents problems for legislation even in the United States was shown by the fact that on May 17, 1913, Governor Foss of Massachusetts signed a bill regulating the licensing and operating of aircraft in that commonwealth. This act makes it unlawful for any aviator or other person to operate an aeroplane, or other craft of any kind, unless licensed so to do by the Massachusetts Highway Commission, except with a licensed pilot, and then not for a distance exceeding 500 miles. The license fee and the qualifications are described by the act, which also requires an inspection of an aeroplane by an official inspector, its registry, and the issue of a registered number. Detailed rules and regulations for flying are prescribed.

In Great Britain aerial navigation acts were passed in 1911 and 1913 and under their terms regulations for aircraft were published. The entry of foreign aeroplanes or airships, except by certain routes, into Great Britain, was forbidden and certain localities were entirely forbidden to aircraft operated by civilians, as well as flying over London within a radius of four miles from Charing Cross. Regulations for aerial traffic were adopted at a conference of the International Aeronautical Federation and regulations for the marking of aircraft and the lights to be carried for night flying, as well as rules of the route, were adopted.

International Pilots' Certificates. The conditions for the award of aviators' certificates prescribed by the Fédération Aeronautique Internationale required two flights, each consisting of five figure 8's around two marks situated 500 meters apart and alighting within a distance of 50 meters from a point previously indicated. An altitude of 50 meters must be obtained in one of the two flights, or a separate altitude flight must be made. It was announced during the year that after January 1, 1914, international qualifications for an aviator's certificate would involve the attainment of an altitude of 100 meters and a descent from that height with the engine stopped. The various national organizations have, in addition, their own requirements for the award of certificates, and so have the aviation corps of the various armies. In the United States, to become effective January 1, 1914, the increased requirements for a military aviator were prescribed by the chief of the Signal Corps and approved by the Secretary of War.

American Pilots' Certificates. The Aero Club of America, which represents in America the Fédération Aeronautique Internationale, reported the following statistics as to the pilots' certificates issued on October 31, 1913: Spherical balloon, 48; dirigible balloon, 3; aviation, 243; hydro-aeroplane, 13; expert, 12; total, 319.

Fatalities. Among the important fatalities of the year in aviation was the death of Col. S. F. Cody, a British citizen of American birth, who had become prominent in the design and direction of aviation for the British army. While flying in a monoplane at Aldershot on August 7 Colonel Cody and a passenger named Evans met with an accident by which they were thrown to the ground from a height of about 200 feet and instantly killed.

Perreyon, the chief pilot and tester of the Blériot school at Étampes, also was killed, as well as Charles Nieuport, the famous designer.

In the United States the more serious fatalities were of army and navy officers. On April 8 Lieut. Rex Chandler, U. S. N., was drowned at San Diego, Cal.; on June 20 Ensign W. Billingsley was wrecked in a wind gust at Annapolis; on November 14 Lieut. C. P. Rich, U. S. A., was killed at Manila through engine trouble, while on November 24 Lieutenants H. M. Kelly and E. L. Ellingten, U. S. N., losing control of their machine at San Diego, perished.

See also Legislation, *Miscellaneous;* Military Progress; and Naval Progress.

AEROPLANE. See Aeronautics.

AFGHANISTAN. A monarchy of central Asia, covering the northeastern part of the Iran plateau. Its four principal provinces are Kabul, Turkestan, Herat, and Kandahar. The population (4,500,000-5,000,000,) are turbulent tribesmen, mostly Suni Mohammedans by religion. The ameer is Hubibullah Khan. A treaty between Great Britain and the ameer, confirmed in 1905, provided that, in relations with other countries, the ameer should act in accordance with the wishes of the British government, which, for its part, would guarantee him against foreign aggression. The Anglo-Russian convention of 1907 acquiesced in this situation, Russia agreeing to act in political matters through the British government, with the understanding that the two countries concerned should trade with Afghanistan on equal terms.

The manufactures are chiefly silks, felts, camels'-hair goods, and carpets. The exports consist chiefly of asafœtida, raw wool, madder, cereals, fruits, furs, shawls, and chintz. Important industries are agriculture and stock-raising. Exports to India in 1912 were £652,655. Imports from India were £877,096.

AFRICA. See articles on the various African countries; Exploration; and Archæology.

AFRICA, German Southwest. See German Southwest Africa.

AFRICAN LANGUAGES. See Anthropology.

AFRICAN METHODIST EPISCOPAL CHURCH. See Colored Methodists.

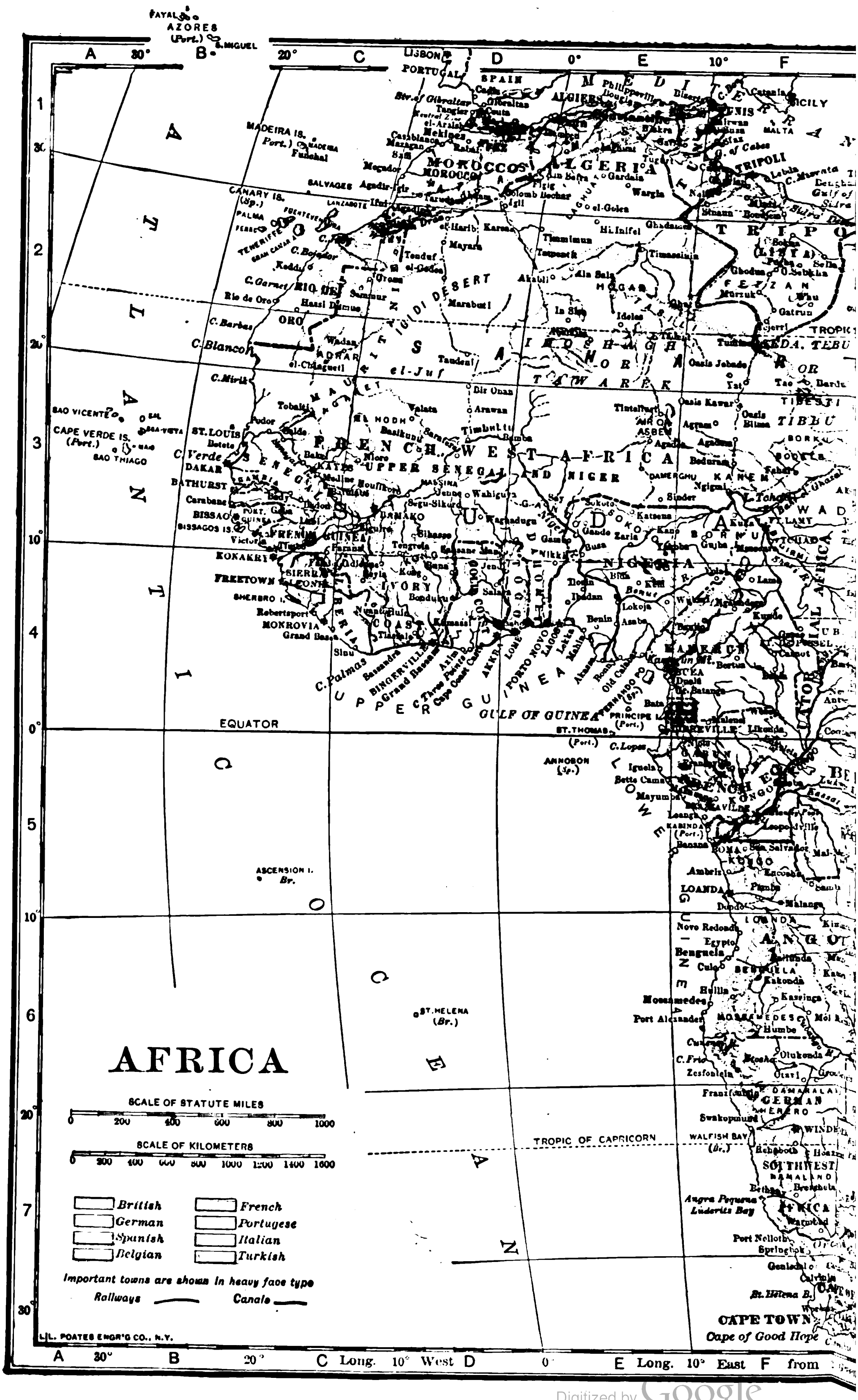
AFRICAN METHODIST EPISCOPAL UNION CHURCH. See Colored Methodists.

AGRICULTURAL BANKS. See Agricultural Credit and Banks and Banking.

AGRICULTURAL BOYS' AND GIRLS' CLUBS. See Agricultural Education.

AGRICULTURAL COLLEGES. See United States Department of Agriculture.

AGRICULTURAL CREDIT. The past few years have seen very notable development of interest in the problem of increasing the credit facilities of farmers. The leaders of opinion have been former Governor Herrick of Ohio, afterward ambassador to France; Mr. David Lubin, organizer of the International Institute of Agriculture; ex-President William H. Taft, the Southern Commercial Congress, and Senator Fletcher. President Taft late in 1912 had pointed out that American farmers borrow annually over $6,000,000,000, upon which they pay an average rate of 8½ per cent. French and German farmers, on the other hand, pay only 3½ to 4½ per cent. The Southern Commercial Congress, in which twenty-seven States were represented, had made plans in 1912 to send abroad the investigating commission noted be-


AFRICA
SCALE OF STATUTE MILES
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SCALE OF KILOMETERS
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British
German
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French
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Important towns are shown in heavy face type
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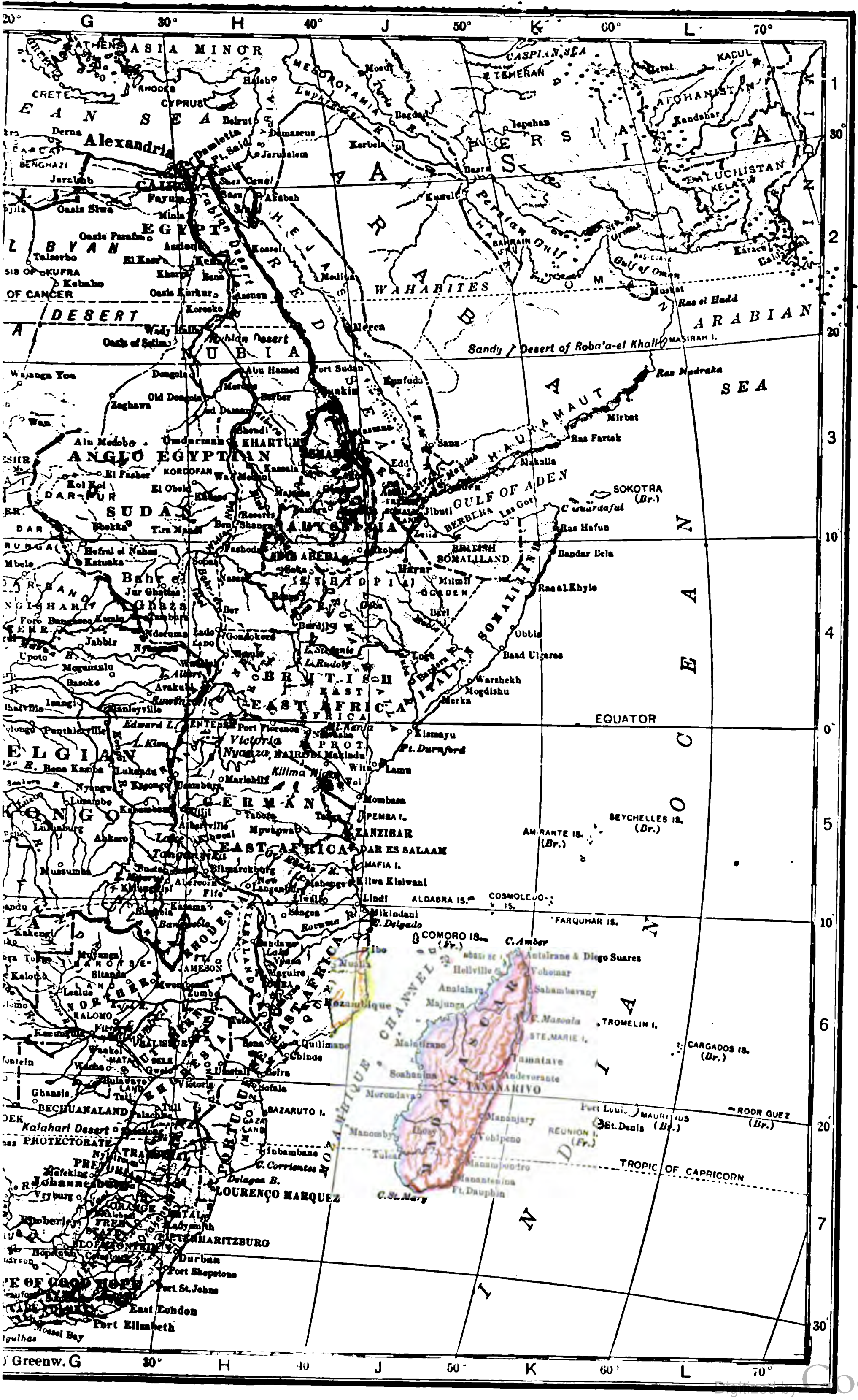
AZORES (Port.)
S. MIGUEL
LISBON
PORTUGAL
SPAIN
Cadiz
Gibraltar
Str. of Gibraltar
Tangier
Ceuta
el-Araish
Mekines
Fez
Rabat
Casablanca
Mazagan
Saffi
Mogador
Agadir-Igir
MOROCCO
ALGIERS
ALGERIA
TUNIS
Bizerta
Philippeville
Kairwan
Gabes
G. of Cabes
Catania
SICILY
MALTA
TRIPOLI
TRIPOLI
C. Misrata
Gulf of Sidra
Figig
Colomb Bechar
Gardaia
Wargla
el-Golea
In Salah
Timmimun
Ghadames
Timassinin
Mursuk
FEZZAN
Gatrun
HOGGAR
Ideles
Tenduf
Taudeni
Arawan
Timbuktu
SAHARA
DESERT
el-Juf
TUAREK
MADEIRA IS. (Port.)
Funchal
SALVAGES
CANARY IS. (Sp.)
LANZAROTE
FUERTEVENTURA
PALMA
TENERIFFE
GRAN CANARIA
FERRO
Ifni
C. Juby
C. Bojador
RIO DE ORO
C. Garnet
C. Barbas
C. Blanco
ADRAR
C. Mirik
MAURETANIA
EL HODH
SAO VICENTE
SAL
BOA VISTA
CAPE VERDE IS. (Port.)
SAO THIAGO
ST. LOUIS
C. Verde
DAKAR
BATHURST
GAMBIA
SENEGAL
BISSAO
BISSAGOS IS.
PORT. GUINEA
FRENCH GUINEA
KONAKRY
SIERRA LEONE
FREETOWN
SHERBRO I.
Robertsport
MONROVIA
Grand Bassa
LIBERIA
C. Palmas
IVORY COAST
BINGERVILLE
Grand Bassam
C. Three Points
Cape Coast Castle
AKKRA
LOME
PORTO NOVO
LAGOS
GOLD COAST
Kumassi
FRENCH WEST AFRICA
UPPER SENEGAL AND NIGER
Bamako
Segu-Sikoro
Jenne
Wahiguya
Say
Sokoto
Katsena
Kano
Zaria
Kuka
Dikoa
SUDAN
NIGERIA
Lokoja
Ibadan
Benin
Akassa
Old Calabar
Yola
BORNU
KANEM
L. Tchad
FT. LAMY
WADAI
TIBESTI
TIBBU
AIR OR ASBEN
Agades
Bilma
Oasis Kawar
DAMERGHU
TROPIC OF CANCER
KAMERUN
Kamerun Mt.
BUEA
Duala
Gr. Batanga
FERNANDO PO (Sp.)
PRINCIPE I. (Port.)
ST. THOMAS (Port.)
ANNOBON (Sp.)
GULF OF GUINEA
UPPER GUINEA
EQUATOR
C. Lopez
Iguela
Sette Cama
Mayumba
Loango
LIBREVILLE
FRENCH CONGO
BRAZZAVILLE
KABINDA (Port.)
Banana
BOMA
KONGO
San Salvador
Ambriz
LOANDA
Malange
Novo Redondo
Benguela
ANGOLA
Mossamedes
Port Alexander
Humbe
C. Frio
GERMAN SOUTHWEST AFRICA
Swakopmund
WALFISH BAY (Br.)
Rehoboth
Windhuk
Bethany
Angra Pequena
Luderitz Bay
Port Nolloth
TROPIC OF CAPRICORN
St. Helena B.
CAPE TOWN
Cape of Good Hope
ASCENSION I. Br.
ST. HELENA (Br.)
ATLANTIC OCEAN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ASIA MINOR
CRETE
RHODES
CYPRUS
ATHENS
MEDITERRANEAN SEA
Alexandria
Derna
BENGHAZI
Jarabub
CAIRO
Pt. Said
Damietta
Suez Canal
Jerusalem
Damascus
Beirut
Haleb
MESOPOTAMIA
Mosul
Bagdad
Kerbela
Basra
Kuweit
TEHERAN
CASPIAN SEA
Ispahan
PERSIA
Herat
KABUL
AFGHANISTAN
Kandahar
BALUCHISTAN
KELAT
Karachi
Persian Gulf
BAHRAIN
Gulf of Oman
OMAN
Muskat
Ras el Hadd
ARABIA
HEJAZ
WAHABITES
Medina
Mecca
Sandy Desert of Roba'a-el Khali
MASIRAH I.
Ras Madraka
ARABIAN SEA
HADRAMAUT
Mirbat
Ras Fartak
Makalla
Aden
GULF OF ADEN
SOKOTRA (Br.)
C. Guardafui
Ras Hafun
Bandar Beila
Sana
YEMEN
Edd
Jibuti
Zeila
Berbera
Las Gori
BRITISH SOMALILAND
Harar
OGADEN
ITALIAN SOMALILAND
Ras al Khyle
Obbia
Baad Ulgaras
Warsheikh
Mogdishu
Merka
Kismayu
Pt. Durnford
Lamu
EQUATOR
Oasis Siwa
Fayum
Minia
EGYPT
Assiout
Kosseir
Kena
Luxor
Assuan
Korosko
Wady Halfa
Nubian Desert
NUBIA
Abu Hamed
Port Sudan
Suakin
Dongola
Old Dongola
Berber
Shendi
KHARTUM
Omdurman
Kassala
Massaua
ERITREA
RED SEA
LIBYAN DESERT
Oasis Farafra
Oasis Dakhla
El Kasr
Kharga
Oasis Kurkur
Oasis of Selima
KUFRA
Kebabo
Taiserbo
TROPIC OF CANCER
ANGLO EGYPTIAN SUDAN
KORDOFAN
El Obeid
El Fasher
DARFUR
Wad Medani
Kodok
Roseires
Beni Shangul
Fashoda
Sobat
ABYSSINIA
ADIS ABEBA
ETHIOPIA
Bahr el Ghazal
Lado
Gondokoro
L. Rudolf
L. Stefanie
BRITISH EAST AFRICA
L. Albert
Edward L.
L. Kivu
ENTEBBE
Port Florence
Victoria Nyanza
NAIROBI
Kilima Njaro
Mt. Kenia
Mombasa
Tanga
PEMBA I.
ZANZIBAR
DAR ES SALAAM
MAFIA I.
Kilwa Kisiwani
Lindi
Mikindani
C. Delgado
GERMAN EAST AFRICA
Tabora
Ujiji
Lake Tanganyika
Bismarckburg
L. Nyassa
BELGIAN KONGO
Stanleyville
Basoko
Lusambo
Lualaba
RHODESIA
NYASALAND
Blantyre
Zumbo
Tete
Sena
Quilimane
Mozambique
Ibo
PORTUGUESE EAST AFRICA
Beira
Sofala
Umtali
Salisbury
Bulawayo
Victoria
Kalahari Desert
BECHUANALAND PROTECTORATE
BAZARUTO I.
Inhambane
C. Corrientes
Delagoa B.
LOURENÇO MARQUEZ
TRANSVAAL
Pretoria
Johannesburg
Mafeking
Vryburg
Kimberley
ORANGE FREE STATE
NATAL
Ladysmith
PIETERMARITZBURG
Durban
Port Shepstone
Port St. Johns
East London
Port Elizabeth
Mossel Bay
CAPE OF GOOD HOPE
C. Agulhas
COMORO IS.
MOZAMBIQUE CHANNEL
ALDABRA IS.
COSMOLEDO IS.
FARQUHAR IS.
AMIRANTE IS. (Br.)
SEYCHELLES IS. (Br.)
C. Amber
Antsirane & Diego Suarez
Hellville
Vohemar
Analalava
Majunga
Sahambavany
C. Masoala
MADAGASCAR
STE. MARIE I.
Maintirano
Tamatave
Soahanina
Andevorante
TANANARIVO
Morondava
Mananjary
Manomby
Ihosy
Vohipeno
Tulear
Manambondro
Manantenina
C. St. Mary
Ft. Dauphin
TROMELIN I.
CARGADOS IS. (Br.)
Port Louis
MAURITIUS (Br.)
St. Denis
REUNION I. (Fr.)
RODRIGUEZ (Br.)
TROPIC OF CAPRICORN
INDIAN OCEAN
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low. In California a special rural credits commission to study European systems was created in 1913. In Canada the Saskatchewan government appointed a commission, which found the average interest rate in that province to be over 8 per cent. It was found that one-half of the farm foreclosures in fifteen months preceding September, 1913, were based on loans bearing 10 to 12 per cent. There was an abundance of facts to show that both in Canada and the United States farmers need credit facilities whereby they may secure long-term loans for the purchase of land, farm implements, machinery, stock, and other equipment, and short-term loans for government operations.

American Commission. The American Commission for the Study of the Application of the Coöperative System of Agricultural Production, Distribution, and Finance in European Countries, organized by the Southern Commercial Congress, consisted of nearly 100 members, representing about three-fourths of the States and Canada. It sailed from New York April 26 and returned about August 1. It had the support of a congressional resolution requesting European diplomatic courtesies. It was also greatly strengthened by a commission of seven authorized by a $25,000 appropriation by Congress and appointed by President Wilson. This was known as the Federal Commission on Rural Credits and consisted of the following men: Chairman, Senator Duncan Fletcher of Florida, president of the Southern Commercial Congress and also chairman of the American commission; Senator Gore, of Oklahoma; Congressman Moss, of Indiana; Clarence A. Owens, of Maryland; President Kenyon L. Butterfield, of the Massachusetts Agricultural College; Professor John Lee Colter, of Minnesota, and Col. Harvie Jordan, of Georgia, president of the Southern Cotton Growers' Association. Mr. Sevellon Brown was sent as the official representative of the Department of State. The report of the American commission was to be made to the Southern Commercial Congress. The report of the Federal commission was partially embodied in a bill presented by Senator Fletcher on August 9. This proposed a system of local national rural banks owned and operated by farmers; a rural national bank in each State, to be owned and controlled by the local banks as stockholders; and a national rural bank of the United States located in Washington and owned entirely by the State rural banks. The supervision of these banks was to be under a special division of the Treasury Department with a rural banking board and a director of rural banking. The bill embodied features of the Landschaft and Raiffeissen systems of Germany, to which Senator Fletcher in a speech directed the especial attention of Congress and the country. Those most interested desired to have sections on farm credit attached to the currency bill. President Wilson and the finance leaders, however, decided to postpone action to the regular session, promising that farm credits should be one of the first items considered.

Massachusetts. The report of the bank commissioner of Massachusetts showed that credit unions among farmers were being formed in that State. In four years twenty-six unions with 2862 members and total assets October 31, 1913, of $94,080 had been formed. They made loans to 752 members in the last year. It was the opinion of the commissioner that such unions were certain to develop rapidly when their advantages became better known.

Lubin's Proposal. Mr. David Lubin, for many years delegate of the United States to the International Institute of Agriculture at Rome, Italy, has been very active in the cause of agricultural credit. His scheme is the adaptation of the German Landschaft system to American conditions. He laid down the following traits of any system of rural credit worthy of consideration: The economic advantage of all parties concerned; perfect safety without artificial guarantees; simplicity of method in making loans; ready detection of any departure from prescribed routine; and institution without class legislation, government funds, or government guarantee. He pointed out that the Landschaft transacts no banking business. It is formed by a body of citizens of a certain locality, and its almost entire function is to exchange its bonds for land mortgages. The borrower then sells its bond in the open market, using the proceeds for his agricultural purposes. The borrower thereafter pays the Landschaft interest and amortization until his debt is extinguished. Failure on his part gives the Landschaft possession of his land, without recourse to any lawsuit. The bonds of the Landschaft bear 3, 3½, and 4 per cent.; yet they have recently commanded higher prices than German government bonds bearing the same interest rate. Mr. Lubin pointed out that the institution of such a system in this country would require the enactment of uniform State or national laws with reference to land titles; otherwise the bonds would not be liquid everywhere.

Jewish Farmers' Coöperative Credit Unions. In 1911 the Jewish Agricultural and Industrial Aid Society began the formation of credit unions among Jewish farmers. Up to November, 1913, there had been formed seventeen such unions, with a total of 517 members. Eight unions were in New York, five in New Jersey, and four in Connecticut. The aid society is an offshoot of the Baron de Hirsch Foundation. The credit unions are formed by the sale of shares somewhat after the manner of the Raiffeissen banks of Germany. Additional capital is advanced by the aid society; that is, when a union gets together $500 an additional $1000 is advanced by the society at 2 per cent. interest. Loans are secured by real estate mortgages and are repayable by amortization in moderate annual installments. The rate of interest is 4 per cent. According to the 1913 report there had been made 1103 loans aggregating $73,624; there had been repaid 754 loans, amounting to $50,816; the total expenses had been only $726. There are in addition a coöperative fire insurance company in Ulster and Sullivan counties, New York; and a coöperative farmers' purchasing bureau with headquarters at New York City. In one year the insurance company claimed a saving of $35,000 to Jewish farmers.—*Financial Review.* See also Banks and Banking.

AGRICULTURAL EDUCATION. Discussions concerning agricultural education during the year 1913 dealt primarily with what and how to teach in the elementary schools, secondary schools, and the colleges, rather than concerning the need of such education. In other words, the period of propaganda to convince educators and laymen of the desirability of agricultural education and research was nearly over. What was especially needed was wise and well-educated leadership in order that the great movement under way might be efficiently organized and guided in right channels. While there was marked similarity in definitions of terms as adopted recently by the legislatures of Massachusetts, Indiana, and New Jersey, there was still wide difference in opinions as to the organizations, methods, and terminology of the subject, but the tendency was strongly toward uniformity.

IN FOREIGN COUNTRIES. There were many evidences of a continued and growing interest in agricultural education in foreign countries. The South African Union offered five government scholarships to sons of permanent residents of South Africa for study in agriculture abroad. The holders of the scholarships were to receive $750 per annum for a period of from three to four years. The Haitian government made an appropriation for the establishment of an agricultural school, and negotiations were under way to engage professors from abroad to give instruction in the latest scientific agricultural methods.

The foundation stone of a new agricultural college, provided for in a bequest, was laid on an estate of over 200 acres near Newton Abbott, Devonshire, England. About $500,000 was available for the institution, of which $100,000 was to be utilized for buildings, and the remainder as a fund for administrative purposes. The institution was to provide agricultural instruction and also to become a research centre for the region. The government of Canada appropriated $10,000,000 to cover a period of ten years, beginning with the year ending March 31, 1914, for instruction and research in agriculture. This fund was to be distributed among the provinces according to population. A law of August 21, 1912, reorganized the department and communal agricultural instruction in France. It established in each department a bureau of agricultural services, to replace the departmental professors of agriculture previously authorized. Under a law enacted by the Philippine legislature February 7, the director of agriculture was authorized to establish and maintain stations for practical agricultural instruction, and to organize and develop a system of coöperative agricultural instruction. A Spanish royal decree of April 11 provided for introducing instruction for the training of agricultural experts (*Peritos agricolas*) into the regional practical schools of agriculture at Valladolid and Zaragoza and the agricultural station at Albacete.

THE U. S. OFFICE OF EXPERIMENT STATIONS. This office continued to represent the U. S. Department of Agriculture in its relations with agricultural colleges and schools. Studies of agricultural schools with reference to the agri cultural subjects which were being or should be taught therein and the requirements of such schools as regards the subject matter of agricultural instruction and facilities for such instruction were made. Publications were prepared for use in schools where agriculture is taught. These publications were chiefly based on the publications of the Department of Agriculture and the State experiment stations. Special sets of lantern slides with lecture outlines accompanying them were prepared, and the review of the world's literature of agricultural education in the experiment station record was continued.

U. S. BUREAU OF EDUCATION. The division of rural education, organized in November, 1911, had specialists who were devoting their attention to the investigation of rural education, industrial education, school hygiene, and other problems, including salaries. Special attention had been given by the division, together with its fifty special affiliated collaborators, to the subject of agriculture in the public school.

GRADUATE SCHOOL OF AGRICULTURE. Announcement was made of the selection of Dr. A. C. True of the U. S. Office of Experiment Stations as dean of the sixth session of the Graduate School of Agriculture, to be held under the auspices of the American Association of Agricultural Colleges and Experiment Stations, at the Missouri Agricultural College, Columbia, Mo., July. 1914.

THE AGRICULTURAL COLLEGES. The increase in the number of students in the agricultural colleges was greater in 1912-13 than ever before, and was well distributed throughout the United States. A large part of this increase was due to the demand for teachers of agriculture and for county demonstration agents. Kansas State Agricultural College established a secondary school of agriculture in connection with the college, which was to be used as a model school in the teachers' training course. At the University of Vermont a department of extension was established. A department of agricultural education was also organized and was to offer a four-year teacher training course with secondary practice schools. Larger specific appropriations for extension work, both Federal and State, made it possible to employ additional men and women for the extension departments of the colleges and to inaugurate several new features of extension work, chief among which was the county farm adviser in which the U. S. Department of Agriculture, the State agricultural college, and other agencies coöperated.

Forty of the land-grant colleges offered during the past year special work for the preparation of teachers of agriculture; 15 offered courses covering four years for teachers; 2 offered two-year courses, and 3 gave one-year courses. Thirty-one of these institutions reported summer schools and 20 gave summer courses in agricultural pedagogy. Four institutions also offered a course for college graduates who expected to teach agriculture.

SECONDARY SCHOOLS. In Indiana a State supervisor of agricultural education has been appointed and departments of agriculture are to be established in a number of high schools in the State under the direction of the supervisor. This is in accordance with the conditions named in the vocational education bill passed by the 1913 legislature, which authorizes State aid to all departments and special schools conforming to the regulations of the State board of education.

According to the most reliable information obtainable, there were about 2300 high schools in the United States teaching agriculture in 1912-13, including 47 State agricultural schools 40 district agricultural schools, 67 county agricultural schools, 18 agricultural departments in high schools, and the remaining 2128 giving ordinary courses in agriculture. There were 103 normal schools offering courses in agriculture. In New Jersey, by an act of the legislature of 1913, the State will give money for the equipment and maintenance of approved vocational schools, on a dollar-for-dollar basis, in proportion to the amount spent by the local community out of funds raised by local taxation to the amount of $10,000 annually.

The chief obstacle in the way of the extension of agricultural teaching in the high schools of various States has been the expense connected with the undertaking. The State of Nebraska, recognizing this fact, passed in the session of the legislature of 1913 an act providing for the designation of accredited high schools as agricultural high schools eligible to receive a maximum of $1250 each year from the State. State aided high schools must offer and teach agriculture, manual training, and home economics.

A law passed by the Tennessee General Assembly of 1913, authorizes the State board of education not only to give aid, to county high schools for general education purposes, but places at their disposal a sum of money for encouraging the organization of departments of industrial work, including agriculture, home economics, manual training, and related subjects, in such schools; and the State board of education has adopted a regulation that it will aid any such schools by appropriating as much as the county puts into such departments, up to $1500.

BOYS' AND GIRLS' CLUBS. At the close of the cropping season of 1912, the office of farm management of the U. S. Department of Agriculture had a total enrollment of 22,000 boys and girls in clubs, covering the Northern, Central, and Western States, and at the close of the fiscal year ended June 30, 1913, the number had increased to 60,000.

In the boys' corn clubs of the Southern States 91,196 boys planted an acre of corn in 1913. The office of farmers' coöperative demonstration work in the Department of Agriculture, with whom these boys are enrolled, is now making a systematic campaign throughout the whole South, to show the corn-club boys the importance of legumes and winter cover crops. In the girls' canning clubs there are 33,060 members distributed over twelve Southern States. Each one of these girls has a garden of one-tenth of an acre of tomatoes.

Although the club activities in coöperation with the U. S. Department of Agriculture and the State colleges of agriculture are comparatively recent, the following club activities have been systematically organized and promoted during the past year: Boys' corn clubs on the acre basis, girls' canning and garden clubs based upon one-tenth of an acre of tomatoes and the canning of the surplus products, potato clubs, vacation canning and marketing clubs, sugar beet clubs, poultry clubs, vegetable garden clubs, and good-roads clubs.

During December 1005 boys and girls from Ohio, who had won prizes of distinction in their State by their ability to grow corn, made a two-day visit to Washington; and these were followed by large numbers from other States who had won distinction in their club work.

AGRICULTURAL EXPERIMENT STATIONS. EXTENSION OF THE WORK. The year 1913 marked the completion of a quarter century of operation of a national system of agricultural experiment stations under the Hatch act of 1887. In this period there has been developed in the United States, "the most comprehensive and efficient system of experiment stations to be found in any country; one which has been close to the problems of the people, has revolutionized practice in many important respects and provided notable improvements in others, and has laid a broad foundation for a science of agriculture." There had been steady progress in the development of these institutions and by 1913 they were stronger than ever before in both personnel and equipment. Their investigations had become more thorough and dealt in large measure with the more fundamental problems. The requirements of such work were being more fully met by the provision of specially designed buildings, laboratory equipment, and apparatus. Examples of this were found in the special facilities for slaughtering animals and handling the carcasses preparatory to analysis in the new agricultural chemistry building at the Missouri station, in the extensive and elaborate facilities for milling grain and testing flour at the Kansas station, and a large outdoor library at the Colorado station for the study of hydraulics as related to irrigation.

The California station received large additions to its income from the State and made a programme for a large extension of experimental work in different parts of the State. The first State legislature of Arizona gave the station an appropriation of $18,000. The Kentucky station had a large addition to its main building and a permanent State appropriation of $50,000 per annum. Research in agricultural economics was organized on a broad scale at the Minnesota station. In Nebraska a fireproof building for agronomy, horticulture, botany, and entomology had been erected at a cost of $85,000, and ampler provision was made for sub-stations. In New Jersey State appropriations aggregating $150,000 were made for buildings and equipment, and 135 acres were added to the station farm. In Ohio the State appropriations for 1912-13 for the station work aggregated over $200,000, and that station was using over 1500 acres in several counties in its field experiments. The North Carolina station established sub-stations on the black muck soils which cover an area of over 2,500,000 acres and are being reclaimed by drainage and in the region where bright tobacco is produced. The Texas station had more thoroughly organized the experimental work at the eleven sub-stations and made provision for greatly extending the feeding experiments at the main station.

FEDERAL AND STATE STATIONS. Agricultural experiment stations maintained in whole or in part by Federal funds in 1913 existed in every State and Territory, including Alaska, Hawaii, Porto Rico, and Guam. There were also stations in the Philippines under the insular government. In 1912 the stations employed 1583 persons in the work of administration and inquiry. The total income of the stations maintained under the acts of Congress of 1887 and 1906 was $4,068,240, of which $1,440,000 was received from the United States and about $1,500,000 from State appropriations. The value of the addtions to the station equipment aggregated $1,506,127, of which $1,003,516 was for buildings. In addition to this, the office of experiment stations had an appropriation of $424,000, including $30,000 each for Alaska, Hawaii, and Porto Rico; $15,000 for the Guam station; $15,000 for nutrition investigations; $100,000 for irrigation investigations; $100,000 for drainage investigations; and $10,000 for investigations of farmers' institutes and agricultural schools, together with $8303 derived from the sale of agricultural products at the insular experiment stations.

In Alabama, Connecticut, Hawaii, Louisiana, Missouri, New Jersey, New York, North Carolina, and Virginia separate stations were maintained wholly or in part by State funds and numerous sub-stations were also maintained in a number of States. Excluding the sub-stations, the total number of stations in the United States is 65, of which 54 receive Federal funds. In 1912 the stations published 719 annual reports, bulletins and circulars, which were supplied to over 1,000,000 addresses on the regular mailing lists. The correspondence with farmers was enormous and constantly increasing.

Office of Experiment Stations. This office continued to maintain close relations with the experiment stations in the several States, conducted an inspection of their work and expenditures under the Hatch and Adams funds, and made the results of their work available to both popular and scientific readers. The advisory functions of the office increased materially with the growth of the extension enterprises in the colleges with which the stations are connected.

Recent Experiments. The Indiana station determined that the chemical composition of butter fat was largely controlled by feed, period of lactation, and breed, while the size of the fat globules was largely determined by breed, period of lactation, changes in feed, and other factors affecting the physical condition of the animal. In butter-making, the control of the moisture in butter was rapidly affected by the regulation of the churning temperature, adjustment of the amount of water present during the working process, and a systematic use of a reliable moisture test.

The Maine station reported that the essential feature of the inheritance in egg production is that the female fowl does not transmit the hereditary factor directly to her daughters but that she may transmit it to her sons, who may in turn stamp this quality on their female progeny. By reciprocal crossing of Barred Plymouth Rocks and Cornish Indian fowls, the station produced a new and highly desirable type of fowl which carries superior qualities as regards both egg and meat production. The histology of the oviduct of the hen was worked out and for the first time a detailed account of its microscopic anatomy was published. The facts set forth are essential to an understanding of the physiology of albumin, membrane, and shell-formation in the development of the egg.

The Arkansas station reported the discovery of motile organisms within the red-blood cells of cholera-infected hogs of the locality, and the study of these hematozoa to determine their significance and their possible relation to the disease was undertaken. Other results secured by this station indicated that the virus of hog cholera as it exists in the blood is prominently intracorpuscular in habitat, but also occurs in the serum and plasma, and that in the shed blood it escapes from the corpuscles into the surrounding fluid either with or without cytolysis.

The production and distribution of hog cholera serum is now conducted on a large scale by a number of stations with good results.

In rotation experiments at the Missouri station, in progress for 22 years, corn after corn yielded 12 bushels, a rotation of corn, oats, and clover 50 bushels, one of corn, oats, wheat, clover, and timothy two years 54 bushels, and the last-mentioned rotation with barnyard manure 74 bushels of corn per acre at the close of the 22-year period. By selective breeding the station increased the yielding capacity of one strain of wheat by about 8 bushels per acre.

The plant-breeding work of the Nebraska station resulted in the development of four superior strains of Turkey Red wheat, and it further showed that the pure strains vary not only in their ability to yield and in their resistance to lodging, but also in the shape and quality of the grain.

The insect and plant-disease control work of the Ohio station in the southeastern part of the State gave striking results in raising the productive capacity of orchards. In Washington County of the State, where formerly not enough apples were produced for home consumption, the income from this fruit amounted to $65,000 in 1910, and to about $200,000 in each of the years 1911 and 1912.

The investigations of poisonous plants conducted by the Wyoming station had the effect of reducing in a very striking manner the loss of sheep due to this source. At Medicine Bow, where the field experiments on woody aster were carried on for two years, the estimated annual loss was reduced from $10,000 to practically nothing. In connection with this work an alkaloid contained in the death camas and named "zygadenine" was separated and crystallized in pure form.

In Alaska the work of hybridizing grains was continued at Rampart and four varieties of beardless barley were produced. A number of strains of alfalfa withstood three winters and some, especially the Grimm variety, made good growth. Attention was given to the seed habit of plants in order to select strains which would produce seed in Alaska. At the Fairbanks station, where farming on an extensive scale was being tried, spring wheat, winter rye, and oats grew well and matured large crops. On slightly more than five acres 1200 bushels of marketable potatoes were produced.

At the Hawaii station it was found possible to breed a strain of papayas, 92 per cent. of which were fruit-bearing, thus doing away with the fruitless staminate plants. Grafting papayas was not only very easy but of considerable value in propagating desirable strains. The soil survey of Hawaii was nearing completion. Many soils of unusual physical and chemical properties were found and their origin from lavas was traced. A series of experiments showed that the pineapple juice wasted in canning processes could be readily converted within 24 hours into a vinegar containing 3.5 per cent. to 4.5 per cent. of acetic acid. It was shown that kukui nuts had a value of at least 1½ cents a pound for oil and fertilizer. The development of the algaroba bean meal industry is proceeding rapidly

In Guam experiments in breeding pure-bred horses, cattle, pigs, and chickens to the native stock were undertaken. A large number of tropical and subtropical fruits, vegetables and forage plants were tested.

In the Philippines a sugar-testing laboratory was established in the Bureau of Science, Manila, and a tobacco station at Iligan. Horse-breeding experiments were begun at Bagamanoc, Catanduanes Island.

In Canada an experiment farm was located near Fredericton, New Brunswick; an experiment station at Scott and a poultry station at Melfort, Saskatchewan; an experiment station at Sydney and an irrigation station for fruit at Invermere, British Columbia.

The following stations were recently established in other countries: A central station at Santa Beatriz, Peru; a cotton station at Caxias, a veterinary station at Bello Horizonte, a tobacco station at Parahiba, and a sugar-cane station at Buenos Aires, Argentina; a vegetable biology station at Poitiers, France; a plant-breeding institute at Eisgrub, Moravia; a general station at Alcalá de Henares and an olive station at Lucena, Spain; a tea station at Sambalpur, Bengal, and a paddy and sugar-cane station at Manganallur, Madras Presidency, India; a sericultural station near Nakano, Tokyo, Japan. In the German African colonies stations were established at Kibongoto, Myombo, Tabora, Neudamm, Okahandja, Jaunde, and Kamaa; in Belgian Kongo at Elisabethville and Stableyville; in Nyasaland at Zomba; in Rhodesia at Lochard; and in Sudan at Tayiba.

AGRICULTURAL LEGISLATION. LEGISLATION IN THE UNITED STATES. Agricultural measures received unusual consideration both from Congress and State legislatures in 1913. Special prominence was given to those designed to improve the farmer's economic status, as by regulating market practices, increasing facilities for agricultural credit and coöperation, and aiding him to drain, irrigate, and otherwise improve his farm. Many inspection laws were strengthened and extended, and several steps were taken to increase the dissemination of agricultural information. Agriculture was also affected by the new tariff act, which materially lowered the import duties on many farm products and removed them entirely from a large number of others, and by a clause in the sundry civil appropriation act, which prohibited the use of certain Federal funds for the prosecution of farmers organized to obtain fair prices for their products. Several States enacted laws relating to marketing, coöperation, and rural credit. (See AGRICULTURE.)

Long-term loans were authorized in Vermont from municipalities to farmers for drainage work. A constititutional amendment is to be submitted in Michigan permitting counties to issue bonds for drainage and other means of agricultural improvement. Kansas authorized its counties to purchase well-drilling machinery and established a State board of irrigation with authority to install pumping plants. Development districts were provided in Washington to assist especially in utilizing cut-over and other unimproved lands. Michigan exempted from taxation for four years cut-over and wild lands being brought into cultivation, and Washington exempted fruit trees other than nursery stock. In North Carolina, the State board of agriculture was authorized to quarry lime with convict labor and sell it to farmers at cost.

The police duties of the U. S. Department of Agriculture were further extended to the protection of migratory and insectivorous game birds (see ORNITHOLOGY) and the inspection of viruses, serums, etc., for the treatment of animal diseases. Laws analogous to the Federal plant quarantine act of 1912 were passed in Missouri, Montana, and Oregon. Five other States strengthened their laws as to inspection of orchards and nursery stock, while 13 made more drastic provisions against animal diseases, and 3 against weed dissemination. New seed inspection laws were enacted in Michigan, Minnesota, Montana, North Dakota, Ohio, Oregon, Pennsylvania, South Dakota, Wisconsin, and Wyoming, and new stallion registration laws in Iowa, Kansas, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The laws as to feeding stuffs were amended in Kansas, Ohio, and Oregon; as to fertilizers in Iowa and Michigan, and as to insecticides and fungicides in California, North Dakota, and Ohio. Ohio also began the inspection of agricultural lime, and Michigan the testing of sugar beets at factories. Massachusetts towns and cities were authorized to appoint bird wardens. New codes of weights and measures on farm produce were formulated in Iowa, Minnesota, New York, and Ohio. Maine and Montana regulated the size of containers for apples, while Utah required labeling as to the owner and grade of the fruit.

The measures pending before the Sixty-second Congress for Federal aid to agricultural extension, vocational education, etc., all failed of enactment, but for the most part they were reintroduced into the Sixty-third Congress. The Lever bill, which carries an ultimate appropriation of about $3,500,000 per annum to the States for the maintenance of agricultural extension work through their agricultural colleges, was modified somewhat by making this work coöperative with the U. S. Department of Agriculture. At the close of the year the measure was pending in this form before both the House and Senate, following favorable reports in December from their respective committees on agriculture. A resolution providing for the appointment of a commission to report on the need and form of Federal aid to vocational education was passed by the Senate in June and had been under discussion in the House on several occasions.

Meanwhile no fewer than nine States, namely, Michigan, Missouri, Montana, Nebraska, New Hampshire, North Dakota, Oregon, Pennsylvania, and Utah authorized their counties to employ farm experts for advisory and demonstration work. In most cases the direction of the work was entrusted to the State agricultural college in coöperation with the U. S. Department of Agriculture. New York provided for demonstration work at almshouses, and with Ohio extended further aid to county farm bureaus. Washington established a State bureau of farm development to assign experts to counties desiring them. In California, power to appoint experts was given to irrigation and drainage districts, while Illinois and Iowa authorized the formation of county associations to engage in similar work.

State departments of agriculture were organized in New Hampshire and Washington, a department of agriculture and publicity in Montana, an agricultural commission in Ohio, and a viticultural commission in California. Iowa encouraged the formation of dairy and beef cattle associations.

CANADIAN LEGISLATION. The Canadian government appropriated $10,000,000 to cover a period of ten years beginning March 31, 1913, for instruction and research in agriculture.

Nova Scotia provided for a system of district farm advisers, amended its stallion registration laws, and authorized farmers' coöperative fruit companies to deal in general agricultural commodities as well. The government may also contribute $20 per mile for the construction of rural telephone lines.

A system of agricultural schools was authorized for New Brunswick. In British Columbia, the act of 1911 was amended to allow the government to make long-time loans to agricultural associations up to 80 per cent. of their subscribed capital.

EUROPEAN LEGISLATION. Great Britain made a minor amendment to its agricultural holdings act of 1908. France reorganized its ministry of agriculture, and its advisory superior council of agriculture, and established a phytopathological service and a commission on beautification of forests. It authorized the use of 12,000,000 francs for loans in agricultural credit, appropriated 10,000,000 francs for acquiring the forests of Eu, and amended its laws to encourage reforestation and the conservation of mountain lands.

Belgium established a phytopathological service, and Italy required the inspection of imported nursery stock, etc. Germany suspended for three years its tariff on imported beef, either fresh or frozen. Norway required imported seeds of common grasses and pines to be distinctively dyed, and fostered forestry and reforestation.

AFRICAN LEGISLATION. Rhodesia began state-aided purchase of pure-bred livestock for farms. The Union of South Africa and the East African Protectorate required the certification of imported potatoes as free from disease. Australia and Nyasaland adopted similar laws regarding nursery stock.

AGRICULTURAL TRAINING FOR FACTORY CHILDREN. See CHILD LABOR.

AGRICULTURE. (See also various countries, and States of the United States, under section so entitled.) The production of crops in the United States in 1913 was materially below the average, the combined yield per acre of corn, spring wheat, oats, barley, rye, buckwheat, hay, and potatoes being smaller than in any year in the past decade except 1911. This shortage was due to a severe drought accompanied by excessive heat during the summer months in an important portion of the agricultural district. The corn crop was less than two and a half billion bushels, the smallest crop since 1903, but the unusually large proportion of the heavy crop of 1912 carried over will mitigate somewhat the effects of the shortage. The winter wheat crop was unusually heavy, making the total wheat production (summer and winter) the largest ever recorded in this country, estimated at 763,000,000 bushels. The oat crop, while nearly 300,000,000 bushels shorter than the record crop of 1912, was the third largest of record, and estimated at 1,122,000,000 bushels. The hay crop was nearly 13 per cent. below the large crop of 1912, the yield per acre being considerably below the ten-year average. The production of cotton was estimated at 13,677,000 bales, or nearly equal to that of 1912, ranking third or fourth in size.

These five crops (corn, wheat, oats, hay, and cotton) comprised about 90 per cent. of the area in all crops, and hence had a predominating effect on the year's agricultural production. Nearly all the minor crops were materially smaller than in 1912 and the yield per acre below the average. The lessened crop production was, however, largely compensated for by higher prices, which gave to the 14 principal crops a total value of $4,940,300,000, as compared with $4,757,343,000 in 1912 and $4,589,529,000 in 1911.

The distinctive features of the "world" crops were increased acreage of wheat, oats, barley, rye, and corn, as compared with 1912. The expectation at the close of the year was that the wheat crop would surpass all previous records and the oat crop rank among the largest ever grown. There was a short crop of rye in Russia, the chief rye producing country, but a large crop in Germany and some other countries was likely to counteract this shortage. Barley was only an average crop considered in a world sense, and the tremendous shortage of the world corn crop, consequent upon the decreased production in the United States, was coincident with a short crop in Russia.

IMPORTANT EVENTS. During the year Hon. James Wilson, Secretary of Agriculture in the United States for a period of 16 years, retired. The interval covered by his service was a most remarkable one in the development of American agriculture, in which he had a very important part. His administration was marked by an intimate knowledge of the practical needs of agriculture, confidence in the ability of science to make it not only more productive and profitable, but a more intelligent industry, and a constant effort to aid the farmer and to promote agricultural instruction. He was succeeded March 4 by Dr. David F. Houston.

In Great Britain, Sir Thomas Elliot, secretary of the board of agriculture and fisheries since 1892, was promoted at the close of 1912 to be deputy master of the mint. He was succeeded by Sir Sydney Olivier, governor of Jamaica. In France, Ferdinand David succeeded Jules Pams as minister of agriculture.

A new law in Ohio established an agricultural commission of four men to take over the duties of the State board of agriculture, the State dairy and food commission, the governing board of the experiment station, and in large measure the State pharmacy board. New Hampshire established a department of agriculture in place of the former board of agriculture; Montana a department of agriculture and publicity; and California a viticultural commission. A State department of agriculture was established in Washington, with a commissioner who will take over the duties now divided among a large number of officials, including the inspection of fertilizers and feeding stuffs and the stallion registration.

A central chamber of agriculture was opened at St. Petersburg at the close of 1912, to promote the agricultural interests throughout Russia. One of its first duties will be the working out of measures for improving the quality of Russian products exported to foreign countries. The Zemstvos and agricultural societies will continue to serve the purely local agricultural interests.

A larger Homestead act was passed by the United States Congress in the spring of 1913, enabling settlers on dry lands to acquire 320 acres of land. A plan for homesteading public lands in the Philippines was adopted. Under a recent law 400,000 pesos were appropriated for the establishment and maintenance of colonies and

"WORLD" CROPS OF WHEAT, RYE, OATS, BARLEY, AND MAIZE, 1912 AND 1913.

Countries	Wheat		Rye		Oats		Barley		Maize	
	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912
United States	763,380,000	205,685,000	41,381,000	35,664,000	1,121,768,000	1,418,337,000	178,189,000	223,824,000	2,446,988,000	3,124,746,000
Canada	207,000,000	205,685,000	2,500,000	3,086,000	395,000,000	381,502,000	44,415,000	43,895,000	14,300,000	14,218,000
Argentina	160,000,000	198,342,000	....	....	118,400,000	79,924,000	....	....	200,000,000	295,865,000
Chile	44,100,000	40,403,000	....	....	3,150,000	2,756,000	17,480,000	....	1,800,000	1,181,000
Uruguay	10,290,000	3,815,000	....	....	1,890,000	2,067,000	....	....	8,720,000	8,981,000
Austria	65,225,000	69,640,000	114,115,000	117,114,000	158,000,000	167,423,000	78,000,000	78,094,000	187,000,000	215,925,000
Hungary, Croatia and Slavonia	167,000,000	184,365,000	56,000,000	56,693,000	98,000,000	76,893,000	83,000,000	78,384,000	16,000,000	11,810,000
Belgium	15,024,000	16,336,000	20,700,000	22,520,000	40,990,000	35,208,000	4,152,000	4,232,000	....	....
Bulgaria	59,000,000	45,408,000	12,280,000	12,402,000	12,780,000	12,058,000	16,652,000	18,400,000	4,000,000	55,118,000
Denmark	4,458,000	3,745,000	19,000,000	18,386,000	48,430,000	52,708,000	26,108,000	27,128,000	....	....
France	322,000,000	334,871,000	53,360,000	50,936,000	358,000,000	324,712,000	500,000,000	50,646,000	24,500,000	24,045,000
Germany	170,875,000	160,227,000	488,561,000	456,608,000	647,980,000	586,999,000	161,000,000	159,927,000	....	....
Greece	6,000,000	3,673,000	....	....	....	....	5,060,000	4,140,000	4,700,000	3,973,000
Italy	215,000,000	165,720,000	5,675,000	5,285,000	41,600,000	28,306,000	10,820,000	8,403,000	110,000,000	92,516,000
Netherlands	4,450,000	4,591,000	15,500,000	16,339,000	22,645,000	14,814,000	3,300,000	3,956,000	....	....
Norway	290,000	294,000	955,000	787,000	10,395,000	11,300,000	2,944,000	3,266,000	....	....
Portugal	1,400,000	10,652,000	3,100,000	2,953,000	10,080,000	10,335,000	9,200,000	8,740,000	7,875,000	7,874,000
Rumania	104,000,000	89,400,000	3,700,000	3,622,000	33,500,000	21,359,000	27,692,000	21,160,000	120,000,000	88,445,000
Russia, Europe Russia, Asia	975,000,000	727,011,000	986,000,000	1,043,982,000	1,025,000,000	1,067,585,000	500,000,000	464,125,000	75,000,000	79,964,000
Servia	12,860,000	13,957,000	1,200,000	1,376,000	5,040,000	4,479,000	4,600,000	4,140,000	26,400,000	25,197,000
Spain	110,000,000	112,416,000	25,400,000	25,755,000	24,540,000	24,461,000	64,000,000	58,605,000	25,200,000	25,984,000
Sweden	8,000,000	6,244,000	20,000,000	22,810,000	75,600,000	80,613,000	15,140,000	14,260,000	....	....
Switzerland	3,500,000	3,269,000	1,780,000	1,772,000	4,655,000	4,203,000	451,000	414,000	120,000	118,000
Turkey, Europe Turkey, Asia	110,100,000	154,266,000	8,800,000	14,567,000	18,900,000	29,627,000	119,600,000	138,000,000	32,000,000	43,307,000
United Kingdom	56,500,000	56,564,000	236,000	236,000	193,000,000	191,542,000	68,000,000	59,800,000	....	....
British India	360,000,000	366,370,000	....	....	....	....	105,000,000	110,400,000	128,000,000	129,921,000
Japan	27,000,000	25,660,000	....	....	4,933,000	50,287,000	95,000,000	94,200,000	3,610,000	3,900,000
Algeria	27,525,000	27,507,000	....	....	16,436,000	12,287,000	50,000,000	33,138,000	460,000	369,000
Egypt	29,725,000	28,943,000	....	....	....	....	10,120,000	11,500,000	58,000,000	68,698,000
Tunis	5,000,000	4,225,000	....	....	3,780,000	2,067,000	6,440,000	4,823,000	....	....
Australia	106,000,000	88,152,000	....	146,920	34,650,000	35,828,000	5,980,000	3,680,000	9,200,000	11,034,000

plantations on the public lands for the cutlivation of rice and other cereals. Laborers may be located on homesteads suitable for the purpose, title to the land to be given in five years from date of filing the application.

A southern settlement and development organization has been formed with a view to unifying the work of the States, railroad and transportation companies, and other agencies in the development of the 16 States of the South. The State of Maryland appropriated $30,000 for the work of the organization, and it was hoped to enlist the financial aid of other Southern States. It is no part of the purpose of the organization to make money for itself or its members, but rather to promote the settlement and development of the South. Agriculture will naturally form a large feature of the work. Dr. C. G. Hopkins, of the Illinois Experiment Station, temporarily was in charge of the agricultural development features, and was to give attention to the improvement and restoration of soil fertility.

The Canadian government appropriated $10,000,000 for agriculture, to be paid in annual allotments of $1,000,000 for 10 years, beginning with the year ending March 31, 1914. The livestock, dairy, fruit, and other interests were to be aided through the federal department of agriculture by investigation, improvement in transportation, development of markets, etc. Agricultural education was to be assisted through increasing the equipment and facilities of the agricultural colleges, establishing schools and short courses, introduction of agricultural teaching in the public schools, and agricultural extension work.

The British board of agriculture, which was granted the sum of $150,000 annually from the development fund for aiding research in various branches of agriculture, completed its arrangements with a series of existing institutions to conduct researches on special subjects, and allotted funds for the purpose. The board also completed its scheme for the allotment of an annual grant of $60,000 from the same source for furnishing technical advice to farmers and the investigation of local agricultural problems. Additions were made to the staff of eight institutions to carry out this advisory and local experimental work. A grant of $180,000 was made from the development fund to aid in the improvement of livestock in England and Wales. This was to take the form of provision of high-class bulls, stallions, and boars, and financial assistance to cow-testing associations.

The Austrian ministry of agriculture was charged with the administration of a fund which provided about $1,250,000 annually for the development of animal breeding in Austria for the years 1910 to 1918. A recent report showed that about a million dollars was used for providing first-class breeding stock, subventions to cattle breeding centres, establishment of herdbooks, and premiums to stockmen. The scheme includes the improvement of pastures, the encouragement of the growth of fodder crops, provision of dairy experts, the promotion of livestock insurance, the sale of livestock, and other measures.

William Deering, one of the founders of the International Harvester Company and long the head of the Deering Harvester Company, died at Chicago in November. His self-binder reduced the hand labor of harvesting enormously and placed his name beside that of McCormick, the inventor of the reaper.

FOREIGN STATISTICS AND DEVELOPMENT. Recent statistics for Australian agriculture show that in the 50 years from 1861 to 1911 the area under cultivation increased from 1,188,282 acres to 11,893,833 acres, and that for the past 10 years the increase has been considerably more rapid than the population. About 62 per cent. of the cultivated area in 1911 was in wheat and 19 per cent. in hay, the remainder being in crops of lesser importance. The ministry of agriculture in Argentina had begun the introduction of camels in the expectation that they would prove useful for all kinds of farm work in parts of the country not adapted to oxen or horses. The same government was making an effort to improve the breed of pigs in that country, and its special representatives visited the United States looking up breeding stock. It was proposed to purchase 10,000 pigs for breeding purposes.

The government of South Africa during the year adopted a plan to encourage immigrant farmers and laborers, by grants of assisted passage. These grants cover the free transportation by sea and land of the immigrant and his family and reasonable baggage, one-half being paid by the government and the balance by the resident farmer desiring to secure immigrant labor. The contract covers a period of three years, at a wage rate approved by the government. Immigrants desiring to engage in farming on the expiration of their contracts will be assisted to settle on the land. The South African government has also concluded a contract with a steamship company providing for free shipment of pedigreed livestock for breeding purposes. Stock imported under these conditions may not be removed from the country within a period of three years. The concession was being freely taken advantage of by the farmers, the shipments of stock having largely increased.

Great strides were reported in agriculture in the Transvaal, Orange Free State, and other parts of South Africa. The large farms in the Transvaal were being cut up, which means closer settlement and more intensive cultivation. Corn culture (maize) was developing more rapidly than that of any other crop, the climate conditions proving admirably adapted to it. There was a large market for the grain.

European agricultural colonization was in full progress in Madagascar, where 252,790 acres were under cultivation by settlers in 1912, as compared with 105,270 acres in 1911. Important plantations of vanilla, coffee, cacao, cocoanut, and ylang-ylang have been made in the past few years. In 1912 the natives had 1,930,000 acres under cultivation, chiefly rice, clove trees, cocoanut, coffee, cotton, and vanilla.

According to a recent report of the Italian ministry of agriculture 92.6 per cent. of the total area of 70,820,197 acres of land is productive, and only 7.4 per cent. is unproductive.

The scarcity of meat in Germany has caused the government to encourage cattle-raising, the land necessary being obtained by making the waste lands and peat moors available as meadows and pastures through drainage. The cutting of peat is discouraged. The Prussian Diet has had under consideration the making of a large appropriation for the reclamation of these lands, and the provisional government and agricultural societies are giving attention to the matter.

Agricultural Conditions in Great Britain. A report on agricultural conditions in Great Britain and Ireland was made to the governor of Iowa by ex-Secretary of Agriculture James Wilson and Mr. Henry Wallace, on the basis of an official visit to these countries during the year. The report comments on the high character of farming, the thoroughness of cultivation, the entire absence of what is known in the United States as worn-out land, and the superior type of livestock kept. It deals largely with the tenant system and laws relating to it. This system prevails almost exclusively in Scotland, but the one-year lease common in the United States is absent, the leases running from 14 to 19 years. This length of lease, with the mutual interest in the land of both the landlord and tenant under the law, tends to preserve its fertility and productive power. The price of land was found as low as in Iowa for similar quality, when it could be bought at all, and the income of the landlords was as low or lower than in that State. In England, Ireland, and Scotland an interesting feature was reported to be the reduction in the area of cultivated crops, owing to the scarcity and high prices of farm help. More land was being put into grass for hay and grazing.

Official statistics show that in England and Wales the reduction in the number of large farms (over 300 acres) continues, 628 of these having disappeared since 1905. In the same time the number of holdings of from five to 300 acres has increased over 3000. This is the more significant since during that period the farmed area (under crops and grass) has diminished by 231,000 acres. The large farms continue to occupy a very considerable proportion of the land—about 25 per cent. in farms exceeding 300 acres, and nearly 60 per cent. in medium farms of 50 to 300 acres, the small holdings of 50 acres or under representing only about 15 per cent. of the agricultural land.

Under the small holdings act the county councils in England and Wales had up to the close of 1912 acquired 154,977 acres, of which 124,700 acres had been let to 8950 individual small holders and a small amount sold. In addition, over 6000 acres had been let to coöperative small-holdings associations which had sublet it to nearly a thousand of their members; and nearly 3000 applicants had been provided with over 37,000 acres by private land owners direct, mainly through the instrumentality of the councils. In five years the small holdings act had resulted in providing land for approximately 15,176 applicants, and in the opinion of the board of agriculture "has proved of signal benefit to the rural population."

A vigorous campaign was opened by David Lloyd-George, Chancellor of the Exchequer, against landlordism in Great Britain. He stated that "the foremost task of liberalism in the near future is the regeneration of rural life —the emancipation of the land of this country from the paralyzing grip of a rusty, effete, and unprofitable system." There were three land-reform programmes: One by the Tories, in which purchase from the landlords was the chief feature; another advocated by the Liberals which did not include purchase, but would break up game preserves, encourage tenant farming by state aid, promote agricultural efficiency and coöperation for marketing purposes, improve housing conditions, and increase the wages of agricultural labor; and a still more radical policy by the Labor party, which included purchase, but on terms and conditions very different from those of the Tory leaders.

Rural Depopulation. The real problem which rural depopulation is becoming, especially in Europe, was emphasized by its selection as the principal topic for extended discussion at the Tenth International Congress of Agriculture at Ghent last summer. The presiding officer at the opening sessions, the president of the International Commission of Agriculture and formerly prime minister of France, took it as the theme of his address. Pointing to the diminishing world's production of wheat and of meat in proportion to population, he urged the necessity of bringing back to the soil the capital and labor that have long been drifting to the towns and cities. He held that wages and conditions must be made more attractive for laborers in the country, inducements must be offered to them to become small land owners, and finally the attitude toward agriculture as a calling should be improved.

Rural depopulation in France and the increasing dependence on foreign labor for harvesting crops was occupying the attention of the government. According to statistics gathered by the ministry of agriculture there were 2,320,000 persons employed in agricultural pursuits in all France, as compared with a little over 3 millions in 1892, 3½ millions in 1882, and 4 millions in 1862. In half a century the agricultural labor had diminished 40 per cent. This was due to the peasants and country people forsaking their farms and flocking to the cities. The reason was ascribed to small returns, irregular work, long periods of enforced idleness, and crop failures due to hail, blight, mildew, etc. In the wine-growing districts a continued decrease of small land owners was reported.

England has experienced a shortage of farm labor, and higher prices have had to be paid at recent hirings. Large numbers of laborers are emigrating, and there is much agitation for a fixed working week, with pay for overtime, a fixed minimum wage, and other concessions.

Farm Land Values in United States. The census of 1910 showed that from 1900 to 1910 the value of farm lands in the United States increased from $13,058,000,000 to $28,476,000,000, or 118 per cent. This was largely accounted for by the increased value per acre of 108 per cent., showing that the total advance in valuation was but slightly attributable to increased acreage. There is no record of an equally large rise at any period in the history of this country. While the increased value per acre was general the country over, the largest gain was in the West. In the Middle Atlantic and North Atlantic States the increase ran up to 100 per cent., while for the groups of States west of the Mississippi it ranged from 146 to 222 per cent., nine Western States showing an increased value per acre of from 200 to 300 per cent. and one State of 476 per cent. This represents the formerly cheap land from which the staple farm products are so largely derived.

Rural Organization and Coöperation. This subject commanded widespread attention in the United States during 1913, as in previous years. Two events of special significance occurred during 1913—the establishment of a rural organization service in the United States Department of Agriculture, and the sending of two commissions to Europe to study the methods and operation of coöperative organizations and rural credit institutions as worked out there. The new Secretary of Agriculture recognized that there were other phases of agriculture at present quite as important as increasing production, and that in the United States "we are face to face with the whole problem of the organization of rural life." One of his first acts therefore was to establish the rural organization service, with Dr. Thomas N. Carver, professor of economics in Harvard University, at its head. As preliminary work, a careful field study was being made to find out what forms of organization have been tried, under what conditions they have succeeded and the reasons for failure, and how more of the successful enterprises may be started. It was hoped to stimulate and coördinate these organizations and thus to set in motion a great movement toward organization and coöperation. An office of markets and divisions of producers' and purchasers' associations and of rural finance were provided.

The general subject was commanding the attention of State legislative bodies. In New York an assistant State commissioner of agriculture was appointed to assist in organizing and maintaining agricultural coöperative enterprises; and Indiana, Michigan, and Washington passed general legislation relating to coöperative associations. Many of the States sent delegates abroad to coöperate with the Federal Commission on Agricultural Coöperation and Credits. In Nebraska a federation known as the Agricultural Council of Nebraska was organized, composed of representatives from each of the agricultural organizations in the State, the object being to secure united action in matters of mutual interest. In the Northwest an organization called the Right Relationship League was promoting and supervising coöperative stores, of which the members are largely farmers.

In Canada the deputy minister of agriculture appointed a special commissioner to inquire into the question of federal and provincial coöperation in the encouragement of agriculture. A coöperative movement for the sale of poultry products in Great Britain was inaugurated with the opening of a central depot in London by the national poultry organization society, which had branches scattered all over Great Britain and Ireland. A coöperative bacon factory, said to be the first of its kind in England, was established to serve the counties of Hereford and Bedford. The coöperative movement in Russia continued to grow in spite of the poor crops of recent years. Dairy coöperative organizations, chiefly for the direct sale of milk and dairy products, continued to develop. During the year 1913 the coöperative movement was showing a greater tendency toward centralization, which has proved beneficial. A farmers' coöperative organization society, with an initial capital of $1,500,000, had been decided upon in New Zealand. The purchase of supplies and sale of produce were objects of the society.

Acting on authority of Congress, President Wilson in the spring appointed a Federal commission of seven persons on rural credits and coöperation, which went abroad the last of April and returned the end of July. It was accompanied by an American commission, composed of State delegates from practically every section of the Union, and numbering more than a hundred persons. This joint commission visited the principal agricultural countries of Europe, either in a body or through subcommissions. It collected a vast amount of documentary evidence and other data, which was arranged and digested by a committee, and was transmitted to the United States Senate and printed in a volume of some thousand pages (Senate Doc. 214). A summary of the findings was also issued (Senate Doc. 261). The report of the joint commission, with recommendations for legislation on rural credit, was submitted to the President in December, but had not been made public at the close of the year.

Rural Finance. It is stated on authority that no country in the civilized world is so nearly without satisfactory and adequate rural credit facilities as the United States at the present time. This handicap forces young, would-be farmers into wage-earning occupations, and it prevents those who do undertake farming from putting into it the capital needed to get the best results. Data collected by the Department of Agriculture early in 1913 showed the predominating rate of interest in the New England and Central States to be 6 per cent. for short-time loans and 5 per cent. for secured loans. In the South and Southwest the rate increased to from 8 to 12 per cent., while in the Western States it was from 7½ to 12 per cent. The average rate in Oklahoma, 11.58 per cent., was higher than from any other State, the range being from 8 to 20 per cent. Statistics in relation to farm mortgages, collected by the United States Census Bureau, show that in the United States as a whole the number of farm mortgages has increased the last two decades more rapidly than the number of farmers free from mortgage, the proportion mortgaged being 28.2 per cent. in 1890, 31.1 in 1900, and 33.6 in 1910. The proportion of mortgaged farms in the last decade increased in every geographical division except the Middle Atlantic, the most conspicuous increase being in the three Southern divisions. This is attributed to increased confidence of lenders in the title to land and the ability of farmers to pay. For the something over a million farms for which statistics were gathered the mortgage indebtedness averaged 27.3 per cent. of their value. Although the average amount of indebtedness per farm showed an increase, it is noteworthy that the average owner's equity per farm more than doubled.

The subject of rural credit presents two aspects, the need for long-time loans for permanent investments and for productive improvements, and the improvement of conditions under which short-time loans may be made for carrying current expenses, as in other business, and especially in the case of the farmer who is just getting established. The rapid increase in farm values and the difficulty of securing free homesteads have given impetus to the growth of the renting system. It is this tendency especially that suggests the importance of devising farm loans on terms that will enable the producers to make the necessary payments on the interest and principal from the returns of the land itself.

Various measures for providing better borrowing facilities were before Congress, and some relief was expected from the new currency law. This law permits national banks to make five-year loans on farm lands up to 50 per cent. of their value, and loans for six months on crops and livestock. In Louisiana, a constitutional amendment went into effect exempting from taxation for 20 years trust companies formed for the sole purpose of lending money on farm lands. Massachusetts, New York, and Texas authorized the formation of agricultural coöperative banks.

The agricultural bank founded in the Philippines by the government about four years ago, for the relief of Filipino farmers from oppressive interest rates, had passed the experimental stage and was proving a great success.

In the fiscal year 1913 the bank had loans on agricultural property of $880,126 (gold), nearly double the amount of the preceding year. The bank had 24 branches or agencies, 13 of which were established during the past year. It had more calls for money than it could meet.

An amendment to the agricultural associations act of British Columbia, passed during the year, provided for making governmental loans to associations engaged in maintaining and operating various agricultural industries, at the rate of four per cent. The Canadian Pacific Railway in settling up its land grant was serving in a sense as an agricultural bank for its settlers, so that these settlers in a new and undeveloped country are said to have better credit facilities than thousands of good farmers in the older farming districts.

In Italy a national coöperative credit institute was established on the initiative of the minister of agriculture, to furnish financial aid to legally organized coöperative bodies and to smaller agricultural associations and peasant farmers. The capital of the institute was $1,500,000, supplied by the various savings banks of the country, and is expected to be increased to $2,000,000. Recent statistics showed that more than $90,000,000 had been loaned by the New Zealand and Australian governments to their farmers.

MARKETING AND DISTRIBUTION. Unusual interest was manifested in this subject, not only by farmers and producers, but by consumers in towns, who recognized the effect of the present machinery of distribution on the cost of food.

Congress had authorized the Department of Agriculture to investigate the present systems of marketing and distributing farm products, on the basis of which an office of markets has been organized. This office was to seek to locate the demand for and the supply of farm products, promulgate market grades and standards for products, and otherwise to promote the delivery of farm produce by the producer to the consumer with a minimum of waste and expense. A bulletin was issued by the department (Report No. 98) early in the year on "Systems of Marketing Farm Products and Demand for Such Products at Trade Centres."

Investigations by the department of the methods of grading and shipping several staple crops point to unnecessary waste and expense. In the case of corn, for example, it was found that owing to shipment before it is sufficiently dried out, freight is paid on 436.682 tons of excessive moisture annually, which not only adds to the net cost of the corn after it is delivered, but results in the farmer's product being placed in the third or lower grade instead of in the second. Furthermore it is one explanation of the shortage of freight cars in the corn-shipping season, the excess moisture being equivalent to over 14,500 freight car loads.

Much data has been collected and published on the cost of distributing food products from the farm to the consumer. Such a study was made, in Philadelphia in 1912, and reported to the mayor, of farm products shipped into the city from outlying counties. High grade butter, which the farmer sold for 23 cents the jobber received 26 cents for, the wholesaler 29 cents, and the retailer 40 to 45 cents a pound, an increase of 74 to 96 per cent. Potatoes, which brought 63 cents at the farm retailed at $1.30 to $1.60, a percentage increase of 106 to 154. Eggs increased from the producer to the retail price 106 to 173 per cent., berries 114 to 200 per cent., live poultry (low grade) 266 per cent., sweet corn 167 per cent., and fresh tomatoes 150 per cent. The average advance paid by the consumer was 136 per cent.

Another study, by the United States Department of Agriculture, of marketing vegetable products showed that under the present system only 33 to 36 per cent. of the price which the consumer pays for perishable products reaches the producer. About 26 per cent. of the cost to the consumer represents transportation charges, from 5 to 10 per cent. commission, while dealers' profits range from 50 to 100 per cent. each; and it is noted that some of the perishable products carry as many as eight distinct charges before reaching the consumer.

To eliminate these, coöperative marketing is the generally advocated remedy, the pack or package being standardized and the grade guaranteed. The trolley lines which run from the country into the large cities were suggested as affording a means of more direct distribution, the produce to be hauled in at night and delivered to stations in the residence districts, where the people would leave orders. Many farmers and truck growers were already availing themselves of the parcel post as a means of supplying customers in the city with chickens, fresh eggs, butter, and vegetables, at a cheaper rate and in fresher condition. The increase in the weight limit to the second zone to 50 pounds greatly enlarged this opportunity.

Naturally the commission men and the methods of some of them have come in for some criticism in studying the prevailing systems of marketing produce in cities. Numerous instances have been traced in which unscrupulous commission merchants have made returns to the farmer considerably below what the products sold for. The practice became so frequent and distrust so widespread that a law was passed in New York State during the year requiring the licensing and bonding of all commission merchants handling farm produce. Under this law nearly 700 commission merchants registered and gave bond in the sum of $3000, on which they may be held in case of proven fraud. Similar laws were enacted in Michigan and Oregon, while Missouri amended its law to require a more stringent accounting by commission merchants. In Texas $15,000 was appropriated to gather information on marketing methods.

FARM MANAGEMENT. Within the past few years a new division of agricultural economics has been developed which treats of the business side of farming, especially as related to farm organization. This includes the selecting of suitable lines as the basis of the farm business and fitting them together into a practical and economical system of management. Ordinarily this means a system that will permit the maximum use of power, labor, and capital within the limits of the owner's available resources, that will require a minimum of equipment with the maximum use of that equipment, and that will so distribute the labor during the season that both man and beast will be profitably occupied at all times without being too much crowded at any one time. It therefore implies diversity of farming and careful planning and adjustment of the cropping system. To devise efficient systems of farm management requires taking account of an unusual number of factors and the procuring of a great variety of information regarding practical operations. It has therefore opened up a somewhat new field of systematic inquiry and correlation of facts, and given a new point of view.

Farm management work in the United States started in the Department of Agriculture and has now spread to many of the agricultural institutions over the country. Numerous studies have been made of systems of farming as followed in various sections, counties or townships, the capital invested, the labor and other expenses of operation, the amount and value of the products, and the net returns to the farmer and his family. Such studies have naturally led into farm accounting, which is largely neglected by most farmers, and estimation of the cost of production. They have made surprising disclosures as to the small returns under some systems and in some sections, and brought to light many examples of exceptionally good planning and successful management. The office of farm management in the Department of Agriculture has secured survey records of over 2000 farms, which give a complete analysis of the farmers' business and show the relative efficiency of labor under different farm conditions. Such systematic studies have brought a more intimate knowledge of the detailed practices, and of the limiting factors governing these practices and affecting their profitableness. They have enabled plans and specifications to be drawn up for the organization and administration of farms to meet increasing demands in that line.

A considerable literature has grown up on this subject, mainly bulletins of the Department of Agriculture and the experiment stations. A pamphlet entitled *What is Farm Management?* by W. J. Spillman, issued by the Department of Agriculture (Bureau of Plant Industry Bulletin 259) near the close of 1912, explains the scope and method of this subject. A treatise entitled *Farm Management*, by Dr. G. F. Warren, of Cornell University (New York, 1913), is the latest important addition to the literature. A thriving organization, known as the American Farm Management Association, held its third annual meeting in Washington during the year, dealing especially with the teaching of farm management, cost accounting, agricultural surveys, and farm efficiency.

CONGRESSES AND EXHIBITIONS. The Tenth International Congress of Agriculture, held at Ghent, Belgium, June 8 to 13, included representatives from 25 countries. The topic for the general sessions was "Rural Depopulation," and there were sections on rural economics, agricultural science and education, animal industry, rural engineering, and forestry. The former committee of arrangements for these congresses was converted into a permanent international commission of about 100 members, with headquarters in Paris. A proposition to organize an interparliamentary union of agricultural representatives was considered, with a view to dignifying the legislative status of agriculture and assisting to obtain action on measures of importance. The American delegate, Dr. A. C. True, extended an invitation to the congress to hold its next session in San Francisco in 1915, which is under consideration. Following the above congress, the Third International Congress of Agricultural Women and the Second International Congress of Instruction in Domestic Science were held.

The fourth session of the General Assembly of the International Institute of Agriculture, held at Rome, May 6 to 12, directed attention anew to the substantial progress being made in this unique enterprise, which assumed tangible form eight years ago as a world's clearing-house of agricultural information. Representatives were present from most of the 53 contributing countries. Several series of periodical publications have been established by the institute for the dissemination of information on crop and other agricultural statistics, economic questions, and progress in agricultural science and practice, most of which are now issued in English as well as French, the official language of the institute. New annuals recently inaugurated are the *Annuaire*, the *Legislation Agricole* and the *International Yearbook of Agricultural Statistics*.

The Fifth National Corn Exposition, held at Columbia, S. C., early in the year, contained exhibits from some 25 agricultural colleges and experiment stations, as well as from the States and individuals, and probably the largest exclusively agricultural exhibit the Federal Department of Agriculture has ever sent out.

The International Dry Farming Congress was held in Tulsa, Okla., early in November. The 1914 congress was to be held at Witchita, Kan. The National Dairy Show at Chicago, in November, was more largely attended than in any previous year, some 150,000 persons being present. A dairy council was formed which banded together practically every phase of the dairy industry. Prof. H. E. Van Norman, dean of the agricultural school at Davis, Cal., was elected president. The International Livestock Exposition at Chicago early in December surpassed all previous exhibitions in the number of entries, in the general high grade of the exhibits and in attendance.

The twenty-sixth annual exposition of the German Agricultural Society was held at Strassburg June 5 to 10. It was one of the most successful expositions of the society, which have been held annually since 1884 except in 1912, when it had to be abandoned owing to the prevalence of foot-and-mouth disease. The showing of livestock was large. The National Livestock and Agricultural Exposition held at Montevideo, Uruguay, during August was the most important and successful national fair ever held in the republic. The livestock exhibits were good, and the exhibitions of agricultural machinery, practically all American, proved of the greatest interest.

The prominence which agricultural gatherings have assumed in the United States was indicated by the presence of Governor Cox at a field meeting of some 5000 people in Wooster, O., to celebrate the twenty-fifth anniversary of Prof. C. E. Thorne's directorship of the State experiment station, and the attendance of the governors of Delaware and Maryland at a meeting of some 6000 people to look over the work of the Delaware College and Experiment Station. These meetings were in no sense political, but were used by the chief executives of the States to discuss with the farmers matters which closely concerned them and their industry, as well as the welfare of the States.

A three-days' convention of the National Forward to the Land League was held in Boston, Mass., in August. The New England Conference on Rural Progress held its seventh annual conference in Boston in March, with delegates present from the various New England organizations. This conference was an expression of the fact now realized that New England constitutes an economic unit, and this has led to considerable unity of action along agricultural lines. The Massachusetts Federation for Rural Progress was formed October 21, representing various agricultural organizations, chambers of commerce, etc. There will be commissions dealing respectively with farm improvement, marketing and exchange, and community life. The Collegiate Country Life Club of America has been formed with the idea of developing a national organization of college men for agricultural betterment. It is intended to organize chapters in the various agricultural colleges and wherever there are clubs of college men interested in the subject.

In June, 1914, there were to be held in London, (1) the First International Exhibition of Cotton, Fibres, and Tropical Products; (2) the Third International Congress of Tropical Agriculture and Colonial Development; and (3) the Fourth International Rubber and Allied Industries Exhibition. The Sixth International Congress of the Dairy Industry will convene at Bern, Switzerland, June 8 to 10, 1914. There will be sections on hygiene, chemistry and bacteriology, dairy management, and trade. See also FERTILIZERS, HORTICULTURE, STOCK-RAISING, and SOIL.

LITERATURE. The following are some of the noteworthy books recently issued: Alva Agee, *Crops and Methods of Soil Improvement* (New York, 1912); G. F. Warren, *Farm Management* (New York, 1913); W. B. Mercier and H. E. Savely, *The Knapp Method of Growing Cotton* (New York, 1913); F. I. Anderson, *The Farmer of To-morrow* (New York, 1913); A. D. Hall, *A Pilgrimage of British Farming* (London, 1913); R. N. Lyne, *Mozambique; Its Agricultural Development* (London, 1913); R. E. Prothero, *English Farming, Past and Present* (London, New York, Bombay, and Calcutta, 1912); *Die Deutsche Landwirtschaft unter Kaiser Wilhelm II.* (Halle-a.-S., 1913, 2 vols.); D. Zolla, *L'Agriculture Moderne* (Paris, 1913); W. H. Olin, *American Irrigation Farming* (Chicago, 1913); J. B. Davidson, *Agricultural Engineering* (St. Paul, Minn., 1913); G. H. Powell, *Coöperation in Agriculture* (New York, 1913); E. A. Pratt, *Agricultural Organization* (London, 1912); and J. M. Gillette, *Constructive Rural Sociology* (New York, 1913).

A new journal of plant breeding, *Zeitschrift für Pflanzenzuchten*, has been established in Berlin under the editorship of Dr. C. Fruwirth. The *Journal of Agricultural Research*, a technical monthly dealing with the research work of the U. S. Department of Agriculture, began publication in October.

AGRICULTURE, UNITED STATES DEPARTMENT OF. See UNITED STATES DEPARTMENT OF AGRICULTURE.

AIRSHIPS. See AERONAUTICS.

AKRON, UNIVERSITY OF. In April, 1913, the trustees of Buchtel College offered its entire plant and endowment to the city of Akron as the nucleus of a municipal university. With the acceptance of the offer, the new University of Akron came into existence on January 1, 1914. The name of Buchtel College will be retained for the College of Liberal Arts. The new university is co-educational. The value of the college buildings and grounds turned over to the university of Buchtel College was estimated in 1913 to be $300,000. There were 19 faculty members and 200 students. The library contains 10,000 volumes. The president is Parker R. Kolbe.

ALABAMA. POPULATION. The population of the State in 1910 was 2,138,093; according to the report of the Bureau of the Census made in 1913, it was then 2,238,614.

AGRICULTURE. The area, production, and value of the principal crops in 1912-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	3,200,000	55,360,000	$49,270,000
	1912	3,150,000	54,180,000	42,120,000
Wheat	1913	32,000	374,000	430,000
	1912	30,000	318,000	359,000
Oats	1913	325,000	6,662,000	4,597,000
	1912	260,000	5,200,000	3,224,000
Rye	1913	1,000	11,000	15,000
	1912	1,000	12,000	16,000
Rice	1913	200,000	4,000	2,000
	1912	800,000	9,000	8,000
Potatoes	1913	18,000	1,512,000	1,588,000
	1912	15,000	1,215,000	1,094,000
Hay	1913	210,000	*a* 286,000	4,061,000
	1912	209,000	261,000	3,811,000
Tobacco	1913	300	*b* 210,000	52,000
	1912	300	225,000	79,000
Cotton	1913	3,800,000	*c* 1,510,000	91,704,000
	1912	3,730,000	1,342,000	77,681,000

a Tons. *b* Pounds. *c* Bales of 500 pounds gross weight.

MINERAL PRODUCTION. The total mineral production of the State in 1912 was valued at $30,641,983, compared with $28,005,785 in 1911. The production of coal in Alabama in 1912 was 16,100,600 short tons, valued at $20,829,252. This was an increase of 1,079,179 tons over the production of 1911, which amounted to 15,021,421 tons, with the value of $19,079,941. The evolution in making coke in the United States and the gradual shifting of this related industry from the coal-mining regions to the centres of population and manufacture is shown in the statistics of coal production of Alabama. According to the returns, the quantity of coal made into coke decreased from 4,417,443 tons in 1910 to 3,129,332 tons in 1911, and to 1,916,474 tons in 1912, whereas the actual quantities of coal made into coke in the State were 5,272,322 tons in 1910, 4,414,298 in 1911, and 4,585,498 in 1912. The reason for this apparent discrepancy lies in the fact that in the two latter years the proportion of coal made into coke in by-products ovens materially increased, and as these ovens were located at the blast furnaces or in or near the largest cities, the coal shipped to them appears as a part of the product "loaded at the mines for shipment," and not as coal made into coke at the mines. The quantity of Alabama coal made into coke in 1912 at points distant from the mines was nearly one and one-half times that used in the ovens near the mines. The production of coal in 1913 is estimated by the United States Geological Survey of from 3 to 5 per cent. greater than in 1912. Several new mines were opened in the State in the spring, and furnished a greatly increased output during the year. Coal mining in Alabama in 1912 gave employment to 22,613 men for an average of 245 days, compared with 22,707 men or 227 days in 1911. The average production per man in 1912 was 712 tons, compared with 662 in 1911. Most of the mines in Alabama are operated ten hours a day. The production by machines increased from 2,936,512 tons in 1911 to 3,742,547 tons in 1912.

Alabama ranks third among the States in the production of iron ore. There were produced in 1912 4,776,545 long tons, valued at $5,734,371, compared with 3,955,582 tons, valued at $4,876,106. The production of pig iron, in which the State ranks fifth, was, in 1912, 1,862,681 long tons, compared with 1,712,211 long tons in 1911. There were 19 furnaces in blast in the State on June 30, 1912. The total value of all clay products in Alabama in 1912 was $1,935,179, a decrease of $11,923 from the product of 1911. The principal product is common brick. This item in 1912 was valued at $759,409.

According to the United States Bureau of Mines, there were 121 fatal accidents in the coal mines of Alabama in 1912, a decided improvement over 1911, when because of several explosions and frequent deaths from windy shots, the aggregate number of fatalities was 209. Of the 121 deaths in 1912, 110 occurred underground, 61 were due to falls of roof and coal, 25 to explosions of gas and dust, 11 to mine cars and locomotives, 9 to electrical shocks and burns, and 3 to explosives, including premature blasts, etc. There were no strikes of serious consequence in the coal mines of the State during the year.

Education. In July, 1912, the total number of persons of school age in the State was 727,297, of whom 399,273 were white, and 328,024 colored. The total enrollment in all schools was 298,648 white and 146,457 colored. The teachers employed were white male teachers, 2886, and white female teachers, 5086. The colored male teachers numbered 957, and the colored female teachers 906. The average yearly salary for male white teachers was $410, and of female white teachers $334. Of colored male teachers it was $175 and colored female teachers $155. The total disbursements for educational purposes in 1912 was $3,703,711. Alabama is one of the backward States in furthering education of its citizens. This is the result largely of local conditions, and efforts are being made to bring about better results. These are chiefly along the lines of improving elementary schools by a closer supervision, by the grading of schools, and by the vitalizing of school work.

Finance. There was a balance in the treasury at the close of the fiscal year 1912 of $262,052. The receipts from October 1, 1912, to September 30, 1913, were $6,288,992. The disbursements for the same period were $6,451,776, leaving a balance in the treasury at the close of the fiscal year of $99,267. The principal receipts are from taxation. The principal disbursements are for State institutions, education, and State officers.

Charities and Corrections. The institutions under the control of the State include the Alabama Home for Refuge, the insane hospitals, Industrial School for White Boys, the Mercy Home, Industrial School for White Girls, the State prisons, the Reform School for Juvenile Negro Law Breakers, School for the Deaf, School for the Blind, School for Negro Deaf and Blind, and the Confederate Soldiers' Home. There is no board or commission directly in charge of the charitable and correctional institutions in the State.

Politics and Government. There was no meeting of the legislature in 1913. Alabama is the only State in which sessions of the legislature are held every four years. The last was held in 1911, and the next regular session begins January 10, 1915. The chief political interest in the State during the year centred in the campaign for United States senator to succeed Joseph F. Johnston, who died August 8. The constitutional amendment providing for the election of United States senators did not provide directly for the filling of vacancies while the legislature was not in session. There was doubt, therefore, as to the method of procedure to be followed. Governor O'Neal announced that he would call a special senatorial election, and with the Attorney-General of the United States, upheld the validity of this action in a statement on August 8. The right of the governor to hold a special election, however, was questioned, and he decided to await the advice of the congressional delegation. The governor was advised by the Senate that he could not appoint a senator without special authorization from the State legislature. On August 12, however, he named Henry D. Clayton, a representative of Congress, to fill the vacancy. Before the Senate could take action on Mr. Clayton's credentials, he declined the appointment at the request of President Wilson, who urged him to continue his place in the House of Representatives in order to assist the President in formulating certain important measures in the future. Mr. Clayton is one of the most conspicuous members of the House, and was chairman of the committee on the judiciary in the Sixty-third Congress. Mr. Oscar W. Underwood, the leader of the House and chairman of the committee on ways and means in charge of the tariff bill, announced his candidacy for the senatorial nomination on October 6. Representative Richmond P. Hobson had already entered the contest for the nomination against Senator Johnston. In a speech delivered in the House on October 14, he charged Mr. Underwood with being a tool of Wall Street, and of the liquor interests. He quoted Secretary Bryan as being opposed to Mr. Underwood. In reply, Mr. Underwood denied the truth of these charges, and declared that he and Secretary Bryan were now on the friendliest terms. On November 13 Governor O'Neal declared that he would make an appointment to fill the vacancy without calling a special meeting of the legislature, and on November 17 he appointed Frank P. Glass, editor of the *Birmingham News*, to serve out the unexpired term of Senator Johnston. On December 12 Mr. Hobson again attacked Mr. Underwood in the House, declaring for a second time that the latter was a tool of the liquor interests, and Mr. Underwood again denied these allegations.

OTHER EVENTS. On March 18 President Oakley of the State convict board was arrested for embezzling, following the disappearance of Theo Lacy, chief clerk of the convict bureau, with a shortage of about $115,000 in his accounts. Lacy's whereabouts were still unknown at the end of the year.

Late in December the dam of the Alabama Power Co. at Lock 12 on the Coosa River was closed and the formation of the lake begun. This power plant represents an investment of $3,000,000 and will supply electric energy to Montgomery, Birmingham, Anniston, Gadsden, Huntsville, and intervening cities.

In December the Fairfield wire mill of the American Steel & Wire Company, a subsidiary of the U. S. Steel Corporation, was completed. Its cost was about $3,250,000.

On December 16 announcement was made that the Limited Gas & Electric Company had purchased control of the American Cities Company, the latter company being the owner of the Birmingham Railway, Light & Power Company and street railway, electric lighting, and gas companies in other Southern cities.

STATE GOVERNMENT. Governor, Emmett O'Neal; Lieutenant-Governor, W. D. Seed; Secretary of State, Cyrus B. Brown; Auditor, C. B. Smith; Adjutant-General, J. B. Scully; Attorney-General, R. C. Brickell; Treasurer, John Purifoy; Superintendent of Education, W. F. Feagin; Commissioner of Agriculture, R. F. Kolb; ex-officio Commissioner of Insurance, Cyrus B. Brown—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, J. R. Dowdell; Associate Justices, Ormond Somerville, A. D. Sayre, John C. Anderson, Edward de Graffinried, J. J. Mayfield, and Thomas C. McClellan; Clerk, R. F. Ligon—all Democrats.

STATE LEGISLATURE, 1913. Democrats: Senate, 34; House, 103; joint ballot, 137. Republicans: Senate, 1; House, 4; joint ballot, 5. Democratic majority: Senate, 33; House, 99; joint ballot, 132.

The State representation in Congress will be found in the arcticle UNITED STATES, section *Congress*.

ALABAMA, UNIVERSITY OF. A State university for higher education, founded at University, Ala., in 1831. The students enrolled in all departments of the university in 1913 numbered 1250. The faculty numbered 102. The productive funds amount to about $2,075,000, most of which is furnished by the State, and the annual income to about $175,000. The library contains about 35,000 volumes. The president is George H. Denny, LL. D.

ALASKA. POPULATION. The population of the Territory remains practically constant. While the decline in placer mining by the old methods has resulted in a decrease of the population in the strictly gold-placer region, in other sections there has been an increase, especially in southeastern Alaska, due to extensive quartz-mining developments, the growth of the inshore and deep-sea fisheries, and the consequent increase of commercial business. It is probable that in 1912-13 there was a slight increase in the total population. In 1910 the total population including natives was 64,356. The white population in 1913 was estimated at 31,000. Various causes may be assigned for the slow increase in the population of the territory. It is partly due to the decrease in placer mining and partly to the fact that national policies have had an effect of discouraging prospective miners. Lack of transportation facilities has been another important cause, which has operated against the development of promising mining regions.

MINERAL PRODUCTION. The value of the mineral output of Alaska in 1913 was estimated by the United States Geological Survey in December of that year at $18,900,000, as compared with $225,378,831 for 1912. The value of the coal output was estimated at $15,450,000, compared with $17,145,941 in 1912. There was also a very marked decrease in the copper production, the production in 1913 being estimated at 19,700,000 pounds, valued at about $3,014,000, while that of 1912 was 28,230,491 pounds, valued at $4,823,031. As the silver output of Alaska is largely a by-product of gold and copper mining, this also showed a decrease in value from $316,839 in 1912 to about $220,000 in 1913. Other minerals, including marble, gypsum, etc., were estimated to have been produced to the value of about $220,000 in 1913, or about the same as the value of the production of 1912. There were several reasons for the decrease in the value of the output in 1913, as compared to 1912. The most important of these was the condition of the placer-mining industry, which, in spite of the advances made in lode mining, still furnishes two-thirds of the gold output. Less than 40 per cent. of the placer gold was produced by large plants, the balance being obtained from the rich gravels that can profitably be mined by hand methods; therefore marked fluctuation in the placer-gold output is bound to occur, due to exhaustion of bonanza on one hand, and the discovery of new districts on the other. Moreover, these small operations are far more dependent on the local water supply than on the large plant. Under such conditions, stability of placer-gold production cannot be expected. The exceptionally dry summer of 1913, and the fact that the bonanza deposits of the Fairbanks district had, in a large measure, been exhausted, accounted for the decrease in gold output. There was, however, no shortage of gold gravels, but only of deposits which could be mined under high-cost methods of operation. The falling off in the copper output was due solely to the fact that the Kennicott-Bonanza—the largest copper producer in the Territory, was closed down on account of accidents for about one-third of the year. In 1913 deposits of gold gravels were found in two new and widely separated localities—in the upper Matanuska Basin and in the upper Chisana Basin, a tributary of the Tanana River. These discoveries curtailed the gold output in some of the larger camps, because they drew away many miners, and thus cost a shortage of labor.

GOLD. The gold production in Alaska in

1912 was valued at $17,145,951, compared with $16,853,256 in 1911. The output from siliceous ores was $5,002,399, compared with $4,226,687 in 1911, and from copper ore $153,552, compared with $86,569 in 1911. The production of the placer mines in the territory decreased from $12,540,000 in 1911 to $11,990,000 in 1912. From the Pacific Coast belt, which includes southeastern Alaska and Prince William Sound, the output of gold in 1912 was $4,904,753, compared with $4,265,573 in 1911; from the Copper River and Cook Inlet regions, the output was $358,401 in 1912, compared with $313,558 in 1911. From the Yukon and Kuskokwym Basin, $8,857,797 in 1912, compared with $9,139,145 in 1911, and from Seward Peninsula and northwestern Alaska, $3,025,000 in 1912, compared with $3,135,000 in 1911. The incerased output of the territory in 1912 was due chiefly to the increased production from gold-lode mines, particularly of southeastern Alaska, and copper mines. The production also increased slightly from the placer mines of the Inkono-Iditarod region, but the output of the Hot Springs, Fairbanks, and Seward Peninsula placer mines declined. A little more than three-fifths of the gold production of the territory comes from placer mines, but the rush was declining as the richer gravels are worked out, and the output from gold-quartz and copper mines increases. The output of the Inkono-Iditarod placer mines increased from $29,000,000 in 1911 to $30,000,000 in 1912. The total gold production from the gold-lode mines in Alaska since 1882 is estimated at $57,811,300 and the total placer output of the same period at $154,800,848. In 1912 there were about 720 placer mines operated in Alaska, compared with 740 in 1911.

The production of silver in Alaska in 1912 was 515,186 fine ounces, compared with 460,231 ounces in 1911. Of the total production in 1912, 376,593 ounces were obtained from copper ores, 102,897 from gold placers, and 35,696 ounces from the siliceous ores of the lode gold mine.

Coal. The production of coal in Alaska, in 1912, according to the figures of the United States Geological Survey, was 355 tons, valued at $2840, a decrease from 900 tons, valued at $7200, in 1911.

Copper. The production of blister copper in Alaska in 1912 was 31,926,209 pounds, compared with 22,314,889 pounds in 1911. The increase in 1912 was due to the larger production from the Copper River and Prince William Sound districts. The mine production of copper in 1912 was 29,230,491 pounds, the larger smelter production resulting from the treatment of some ore mined the previou year. The important production of copper in Alaska began about 1903, and from that year it has been a steady producer. To the close of 1912, the total production of blister copper was 91,052,543 pounds. The output was entirely from the Ketchikan, Prince William Sound, and Copper River districts. The production in the first-named district has been for several years decreasing, but the production from Prince William Sound district has increased greatly in recent years. In 1912 the production was the largest yet made by this district. In the Copper River district there is but one producing mine, but development of other properties is active.

Agriculture. The agricultural development in the territory has reached a stage which insures it a permanent place. This statement applies generally to the interior country and particularly to the Tanana and Yukon valleys. Work being done at the government experiment stations at Sitka, Rampart, and Fairbanks, is of the greatest importance. The fact that there was but a small increase in the number of farmers in 1913, is due to economic conditions, chiefly to lack of transportation facilities and the cost of surveying homesteads if they are located outside of the few districts where government surveys have been made. The expense of erecting buildings is almost prohibited when prevailing wages for day labor in Alaska are compared with those of the United States. Among the products which have been grown with success are various grains, including barley and oats, alfalfa, potatoes and turnips. The Kodiak Experiment Station, which was injured by the volcanic disaster of 1912, was partly rehabilitated in 1913, and a large area of pasture land was covered with a layer of ashes varying from one to three feet in depth. In order to reëstablish the destroyed pasture, a considerable area was sown to grasses. It is believed that the ashes will be a decided benefit to the country after the first effects have worn off. At this station is a herd of purebred Galloway cattle, which have been bred with great success. The governor of Alaska in his annual report of 1913 suggests the possibility of establishing colonies for Scandinavians to develop the agriculture possibilities of the Territory.

Commerce. The volume of merchandize shipments, including precious metals and copper, between Alaska and the United States and between the Territory and foreign countries in the fiscal year 1913, was the largest in the history of the Territory. Figures for 1913 are $67,150,519, compared with $64,122,506 in 1912. The greatest advance in the shipments from Alaska was in salmon, in which there was an increase of $21,875,791. Decreases in the shipments of gold and copper were more than balanced by the increase in other items. The merchandise shipments to Alaska from the States amounted to $20,179,547, compared with $18,809,270 in the fiscal year 1912. The increased shipments to Alaska were noted in the items of coal, lumber, hardware, provisions, and miscellaneous. The total shipments, including copper but not precious metals, from Alaska to the States in 1913 amounted to $23,006,246, compared with $20,776,756 in 1912. The principal shipments of merchandise from the United States to Alaska were of coal, lumber, hardware and machinery, provisions and liquors. Shipments from Alaska to the United States included salmon and other fish, copper, whalebone, furs, gold, and silver.

Fisheries. The fisheries of Alaska are one of its industrial assets. The fisheries output is second only to the production of gold and other metals. In 1912 there were 23,253 persons engaged in all branches of fisheries during the calendar year. This was an increase of 6231 to the number of persons in 1911. Of the fish taken, salmon is by far the most important. It is estimated that the canned salmon for 1913 would aggregate 3,800,000 cases, a decrease of 250,000 over the pack of 1912. This decrease in the output is partly due to the heavy pack of 1912 and the resultant low prices prevailing. The value of the canned salmon shipped from Alaska in the fiscal year 1913 was $16,085,864. Other important fish taken are halibut, cod, and herring. The total value of these shipped in 1913 was $1,098,211.

NATIONAL FORESTS. The total receipts of the Tongass and Chugach national forests for the fiscal year ending June 30, 1913, were $52,460, compared with $53,218 in 1912. The number of areas surveyed and platted for occupancy permits during the year was 120. The total amount of timber cut in these forests during the fiscal year was 33,534,860 board feet. Thirty-five per cent. of the total receipts of the national forests of Alaska is returned to the Territory for the maintenance of roads. On March 3, 1913, the Aleutian Island Reservation was created by executive order for the propagation of fur-bearing animals, reindeer, and fish.

FURS. In the year ending November 15, 1912, fur shipments were made from 120 different places in Alaska. The total of the fur shipments in that year aggregated $794,156. In 1913, the value of the furs shipped was $751,345. Sealing operations on the Pribilof Islands were conducted under the direct control of the fur-seal agents of the bureau of fisheries, and as a result of the treaty of December 15, 1911, there is now no pelagic sealing. The season of 1912 was the first that fur-seal herd was not subject to the ravages of pelagic sealers, and it was possible for the first time in the history of the first seals to take the actual census of the herd. The enumeration thus made shows that there were 215,950 seals of all classes. The number of sealskins shipped in 1913 was 3674. These were sold at auction in London on January 1913, the proceeds of the sale being $130,640. Fox skins taken on these islands in the winter of 1911-12 numbered 384 blue, and 29 white. These were sold at auction in London in March, 1913, the net proceeds being $20,505. The lot of 28 skins from St. Paul Island was sold at $131 per skin.

REINDEER. On June 30, 1912, the reindeer of the Territory numbered 38,476, compared with 33,629 in 1911. Of the reindeer, 24.068 were owned by natives. The reindeer industry affects the entire coastal district from Point Barrow to the Alaska Peninsula. A line connecting the fifty-four herds in existence would be more than 5000 miles in length.

EDUCATION. The number of schools of white children outside of incorporated towns was increased by six during the fiscal year 1913, and there was a decrease of one at Tanana, which was incorporated in December, 1912. In 1913, there were 26 schools, employing 37 teachers, with a total enrollment of 943. The school law provides that there shall be at least 20 white children of school age in a community outside of incorporated towns before schools can be established. The territorial legislature at its first session, enacted a law providing for the compulsory education of white children and those of mixed blood, living civilized lives in the Territory, between the ages of 8 and 16 years, residing within two miles of any school outside of incorporated towns. Similar provision was made to the law for compulsory education of native children and children of mixed blood not leading civilized lives, between the ages of 8 and 16, where such children reside within one mile from the United States Public School. The legislature memorialized Congress to enact legislation for the creation of a board of education and a board of examiners, with not less than two school superintendents for white children in the Territory, together with appropriations to defray expenses of the proposed boards. The total expenditures for white schools outside of incorporated towns in the school year 1912-13 was $53,160.

TRANSPORTATION. There was no railway constructed in Alaska during 1913. Of the 466 miles of track previously built, only about 200 miles were operated. This is largely due to the high cost of fuel and to the tax of $100 a mile on all operating lines. These conditions tended to discourage the railways, especially those which are but partially completed. A new feasible railroad route, from Portage or Passage Bay on the west side of Prince William Sound to Turnagain Arm, was discovered in 1913. A route was found which by use of a tunnel about two miles in length, will avoid the glaciers and yield low grades of both in- and out-bound traffic. The distance from tidewater on Prince William Sound to tidewater on Turnagain Arm is about 12 miles, and the proposed line will join the Alaska Northern Railroad at about miles 63. By use of this route the distance from tidewater to the Matanuska coal field can be reduced to 136 miles.

Communication with Fairbanks was made in 1913. During the summer, several automobile trips were made over the military wagon road. A new direct steamboat system was established between upper Yukon points and Fairbanks. Wagon road and trail construction was continued by the Alaska Road Commission in different parts of the Territory, thereby reducing cost of transportation to various mining camps. It is emphasized more and more each year that the railway construction is of first importance to Alaska, and second only to this is the building of a system of tributary wagon roads.

On June 10 the rolling stock and trackage of the Alaska Northern Railroad were turned out to a committee of business men, to be used for the benefit of the public, because of a demand by the Federal government for $67-000 due for taxes. The company asserted that it was relieved of the payment of these taxes until 1916.

The importance of railways in the development of the resources of Alaska was forcibly shown in a letter written by the Secretary of the Interior, Mr. Lane, to Senator Pittman, the chairman of the Senate's committee on Territories, in June. The bill relating to the administration of the government of Alaska provided for the construction by the national government of a railway system in the Territory. The Secretary of the Interior declared that he believed that this was the right policy and that it was necessary for the safe and quick development of Alaska. He regarded it, indeed, as the only way, and pointed out that England in Africa, Russia in western Asia, and the plans for the development of China, all centre upon the railways.

Mr. Lane definitely favors governmental ownership of Alaskan railways. He considers Alaska's future not as that of a land of mines and fisheries, but of towns, farms, mills, and factories, with millions of people, and the first step towards such a condition, he declared, was the building and owning of railways by the United States. These railways will connect the fertile valleys of the interior with the coast and bring to the world's markets Alaska's coal mineral resources.

POLITICS AND GOVERNMENT

LEGISLATURE. The first legislature of the Territory convened on March 3, 1913. Members for the Territorial Legislative Assembly had been elected on November 5, 1912. The legislature consists of 24 members, 8 in the Senate, and 16 in the House. Two senators and four representatives were elected from each of the four judicial divisions. The session of 1913 lasted 60 days. A considerable number of laws of a constructive character were enacted. The first law passed extended the elective franchise to such women in the Territory as have the qualifications of citizenship required of male citizens. In all, 84 laws were passed, embracing a wide range of subjects together with 71 memorials and resolutions touching matters of interest to the people of the Territory, upon which the legislature is without power to act.

TERRITORIAL OFFICERS. In July Walter E. Clark was succeeded as governor of the Territory by J. F. A. Strong. The Territorial legislature at the first session created the office of the Territorial treasurer, and Walstein G. Smith was appointed to this position on July 1, 1913. Other officers are secretary to the governor, William A. Shorthill; ex-officio secretary of Alaska, Charles E. Davidson; delegate to Congress, James Wickersham.

On October 5, the city of Nome suffered great loss on account of the worst storm ever known since the settlement was made. Five hundred houses were demolished by the sea. This was followed by fire, and the total loss was about $1,500,000. The electric light plant of the city was wrecked, and tug boats and other small craft were destroyed. The mining camp of Solomon, 40 miles eastward, was also destroyed by the storm. See also EXPLORATION, *North America.*

ALBANIA. An independent state created by the provisions of the treaty of London (May 30, 1914), under the rule of a Christian prince; previously a Turkish possession. Under the Turkish régime the name Albania was given to an indeterminate area embracing the vilayets of Scutari and Yanina, with portions of Kossovo and Monastir. Certain portions of the original Albania were distributed among the Balkan states after the war with Turkey, and the remainder, covering some 28,000 sq. kilometers, carrying an estimated population of 800,000, was erected into a separate and independent principality. The principal towns are Scutari, Durazzo, Valona, and Koritsa. The boundaries will be delimited by an international commission. Prince designate, William Frederick Henry of Wied, born March 26, 1876; married (Nov. 30, 1906) to Princess Sophie of Schönburg-Waldenburg. They have issue a daughter (born Feb. 19, 1909) and one son, Prince Carol Victor, born at Potsdam May 19, 1913.

HISTORY. One of the causes of the Balkan War of 1911-1913 was the chronic unrest and disorder among the Albanian tribesmen and the apparent inability of the Turkish government to suppress a particularly violent outbreak in the summer of 1912. One of the results of the Balkan War was the freeing of Albania from Turkish suzerainty and its emergence as an independent state. How this was brought about is treated at some length under TURKEY AND THE BALKAN PEOPLES; it will suffice in this place to emphasize such elements in the Balkan situation of 1913 as relate closely to Albanian affairs.

From the outset of the Balkan War in October, 1912, it was obvious that Montenegro, Servia, and Greece planned to tear Albania from Turkey and divide it among themselves: Montenegro directed its main attack against Scutari; Servia sought to appropriate the greater share of northern and central Albania, including free access to the Adriatic, especially the coveted port of Durazzo; and Greece hoped to realize her ambition to possess Janina and the more or less Hellenized portions of southern Albania. Now while the Albanians objected to Turkish rule, they were even more determined not to accept either Serb or Greek control. Consequently, Essad Pasha's Turkish garrison in Scutari was able, with native tribal assistance, to make a long and valiant defense against Montenegrin attacks, and at Valona, on November 28, 1912, several Albanian leaders, headed by Ismail Kemal Bey, formally proclaimed the independence of Albania and set up a provisional government.

For many years both Austria-Hungary and Italy had been developing important commercial and industrial interests in Albania, and both powers were known to cherish hopes of political supremacy in the country. Although they could not agree on any scheme for a territorial division between themselves, they were firmly united in their determination to prevent the absorption of Albania by Greek and Serb. They therefore sympathized with the declaration of independence on the part of Ismail Kemal Bey's provisional government; and, with the aid of their ally, Germany, they brought sufficient pressure to bear upon the Ambassadors' Conference of the Great Powers assembled in London, to secure general recognition of the principle that Albania should be an autonomous state, that Servia should have no territorial extension to the Adriatic, and that Scutari should be incorporated in the new principality. As soon as this principle was accepted, the ambassadors' conference proceeded to settle the boundaries in a general way and to prepare for the erection of a permanent government.

Russia, as the great power especially friendly to the Slavic states of the Balkans, was by no means pleased with the determined attitude of Austria-Hungary and Italy, and, with the aid of her partners in the Triple Entente, France and Great Britain, managed to secure some concessions for Servia. It was thus decided that Servia should have commercial access over Albanian territory to the Adriatic, probably to the port of Durazzo, and that the northern and eastern frontier of the new state should be so drawn as to incorporate important Albanian districts in the enlarged Servia and Montenegro. While the ambassadors' conference, by agreement of March 26, still guaranteed Scutari to Albania, they handed over to Servia and Montenegro the debatable districts of Ipek, Prisrend, Dibra, and Djakova.

The right of the great powers to delimit the boundaries of Albania and provide for its government was fully confirmed by the treaty of London, signed on May 30, between Turkey and the Balkan allies.

Meanwhile the provisional government of Ismail Kemal Bey at Valona was doing its utmost to preserve order throughout the country and to prevail upon the powers to extend the country's boundaries. A congress of Albanians, which met at Trieste on March 1, urged the annexation of Janina, Monastir, and Üskub, and emancipation from the tutelage of Europe. To these proposals, however, the great powers turned deaf ears. Only in the case of Scutari, which Essad Pasha had been obliged to surrender to the Montenegrins on April 23, did the powers bring actual armed pressure to bear upon any of the Balkan allies: an international naval force, headed by the British admiral, Sir Cecil Burney, occupied that city on May 14, in the name of the principality of Albania. The settlement at Scutari released the redoubtable Essad Pasha from his duties there and enabled him to take an active part in Albanian politics. After fruitless efforts to have himself recognized as "king" of the new state, he joined the provisional government of Ismail Kemal Bey as minister of the interior. It was not long before he quarreled with his chief and set out on a trip to Italy and Austria-Hungary to register a strong protest against the existing régime in his country. Upon his return in September, he repaired to Durazzo, where, in the following month, he solemnly proclaimed a new government, separate and apart from that of Ismail Kemal Bey at Valona. In his proclamation, Essad Pasha denied any intention of wishing to split Albania permanently into two parts but excused his action on the ground of Ismail Kemal Bey's vacillating character and neglect of the northern districts. The Durazzo government claimed authority from the River Mat to the Shkumba, including Tirana, Kroia, Kavaja, Pegin, and Shiak: it would be conducted by two senators from each district with Essad as the head. Its author promised that it would last only until the powers had established a permanent government for the whole country.

While Ismail Kemal Bey and Essad Pasha were quarreling with each other and thereby giving rise to increased disorder among the tribesmen, the ambassadors' conference in London persevered in its work. Late in July it was agreed that Albania should be governed by a prince, who would be nominated at the end of six months, the administration of the country in the meantime being placed in the hands of an international commission of control, consisting of one representative of each power and one Albanian; this commission would be directed to make recommendations to the powers for the permanent organization of the country. It was likewise agreed that a gendarmerie should be speedily organized under Dutch officers. In October the Commission of Control was duly installed at Valona with the following foreign members: Great Britain, Mr. H. Lamb; France, M. Krajevsky; Austria-Hungary, M. Petrovich; Russia, M. Pebriajeff; Germany, H. Winkler; Italy, Sig. Leoni. It was arranged that the post of president should be held in turn by each of these members for a month at a time in alphabetical order according to the nomenclature of their countries in the French language, the presidency for the first month being accordingly entrusted to the German representative.

Next to the establishment of the Commission of Control the most important Albanian problem facing the powers was the delimitation of the frontiers. To solve this problem two international commissioners were created, both composed of representatives of the six great powers, the one, that of the north, charged with delimiting the Montenegrin and Servian frontiers, the other, that of the south, empowered to locate the Greek boundary. These commissions simultaneously began their work of surveying in October. The northern commission in attempting to conform to the agreement of March 26, which has been mentioned above, encountered two chief difficulties. In the first place, two of the five tribes of the Malissori—the Hoti and the Gruda—had been transferred to Montenegrin sovereignty much against their will, and the resultant fighting in the mountains south and east of Scutari made surveying most dangerous. Then, in the second place, the incorporation of Dibra in the Servian kingdom was particularly resented by the Albanians; an armed force of tribesmen seized the town, and it was recovered by the Servians only after two weeks of fierce fighting. But the difficulties of the northern commission were slight as compared with those which beset the southern commission. In a general way, the ambassadors' conference at London by agreement of August 11 had so far settled the Græco-Albanian frontier that it would run from a point south of Cape Stylos to Lake Orchida, incorporatiing the largely Hellenized district of Koritza in Albania. It was now decided that the southern commission, in drawing the line definitely, should take into account the language and nationality of the populations in debatable areas. This was the signal for frantic efforts on the part of Greek frontiersmen to assail the Albanians, and on the other hand for Albanians to slaughter Greeks. The labors of the commission were further handicapped by the curious fact that only the Austro-Hungarian and Italian delegates were actually proficient in the languages spoken by the inhabitants. Under these circumstances little headway was made until, early in December, the powers adopted a compromise proposed by Great Britain to the effect that the southern commission should not inquire into the nationality of the population but should endeavor to arrive at a *modus vivendi* between the pretensions of Greece on one hand and those of Albania, backed by Austria-Hungary and Italy, on the other. This compromise enabled the commission to complete its work on December 18, when it awarded Tepelena, Argyrocastro, Kolonia, Premetti, and Leskoirk to Albania and the Cazas of Konitza and Pogoni to Greece It was likewise arranged that the new Albanian territories then occupied by Greek forces should be evacuated by January 20.

In November a "national" bank was founded at Valona with Italian and Austro-Hungarian capital. On November 28, the anniversary of the proclamation of Albanian independence was observed as a national holiday and official recognition was accorded to the provisional government at Valona; delegates of the Commission of Control and the three consuls resident in the city—Austro-Hungarian, Italian, and Bulgarian—paid a state visit to Ismail Kemal Bey, and the foreign gunboats in the harbor fired a salute of twenty-one guns. Reports passed current that the powers would nominate as first prince of Albania the Protestant German Prince William of Wied, a relative of the Queen of Rumania (Carmen Sylva). Prince William visited Rumania and Italy in the autumn, and it was anticipated that he would arrive in Albania in January.

ALBEDO OF THE EARTH. See ASTRONOMY.

ALBERTA. A province of the Dominion of Canada, between British Columbia on the west and Saskatchewan on the east. Area, 255,285 square miles; population (1911 census), 374,663, representing an increase of 413.1 per cent. in ten years. Population of the cities (1911 census): Calgary, 43,704; Edmonton, the capital, 24,900; Lethbridge, 8050; Medicine Hat, 5608; Strathcona, 5579; Wetaskewin, 2411. Since the census the population of the province and especially of the two largest cities has greatly increased. Alberta became a province of the Dominion September 1, 1905. The chief executive is the lieutenant-governor, who is appointed by the governor-general of Canada; he acts through an executive council (responsible ministry) of eight members. The Legislative Assembly consists of 56 members, elected by direct vote for five years. Lieutenant-governor in 1913 (since September 1, 1905), George Hedley Vicars Bulyea; premier in 1913, A. L. Sifton. See CANADA.

ALCOHOL. The mooted question as to whether alcohol occurs normally in the blood and body-tissues, was taken up by Schweisheimer, who found minute quantities amounting to about 0.003 per cent. of a volatile, oxidizable substance, in normal animal blood and tissues. This agrees with previous investigations, and although Schweisheimer believed this substance to consist largely of alcohol, chemical limitations prevented its absolute indentification. More important, however, than this work was the determination of the alcohol content of the blood of individuals in various stages of intoxication. Schweisheimer found that there were striking differences in the behavior of the alcohol in the blood of habitual drunkards and in that of abstainers; in the latter the maximum absorption occurred in from one to two hours after drinking a liter of wine containing 10.35 per cent. of alcohol and remained stationary for five to six hours, with practically entire disappearance in 12 hours. The habitué, on the other hand, showed a maximum absorption which occurred very quickly, was maintained only about two hours, and then rapidly disappeared. It was also noted that in the chronic alcoholic, the maximum content was much lower with the same dose than in the abstainer. With the dose given above, the alcohol content in the blood ranged between 0.1 to 0.15 per cent., while in the subject thoroughly saturated with alcohol from 0.12 to 0.23 per cent. were found. These results indicated that the chronic alcoholic is able to eliminate alcohol more rapidly than the occasional drinker. This was a fact commonly recognized, but the experiments throw no light on the manner in which it is accomplished. Other observations taken with abstainers, moderate drinkers and confirmed alcoholics, demonstrated that a progressive ability to keep down the quantity of alcohol in the blood and tissues is persistent, thus agreeing again with common observation that this faculty is gradually acquired. The practical usefulness of these findings lies in the help they may offer in the differential diagnosis of cases of coma which occur in the streets of every large city and often result in a mistaken diagnosis of alcoholism for fracture of the skull, uremia, or unconsciousness from other causes. Many cases of this kind are consigned to a police-station cell which should properly be hurried to a hospital.

Another old but fascinating problem about which various observers seem unable to agree, namely, as to whether alcohol is or is not a food, was studied by Durig of Vienna. The classical experiments of Atwater and Benedict in 1912 showed that 99 per cent. of moderate amounts of alcohol were actually oxidized in the body as completely as ordinary food and left the body in the form of heat. It was also shown that alcohol protects the body fat, and to some extent the protein, from consumption. What these experiments do not show is that the energy arising from the oxidization of alcohol can be transformed into muscular work, although Atwater and Benedict consider it "highly probable." Durig's experiments endeavor to solve the question as to how far alcohol can really replace carbohydrate in nutrition. His subjects were given large amounts of sugar with and without the addition of alcohol, and his experiments were so planned that if the oxidization of alcohol resulted merely in the production of waste heat, as has been urged by the partisans of the anti-alcohol school, its products would be added to that of the sugar which was always abundantly available. His results showed apparently that there was no waste under such conditions; in spite of the large amount of sugar available, it was conserved for the production of energy by the alcohol, which was burned to replace it. It is often contended that such conservation of food-stuffs by alcohol is due to a paralysis or inhibition of all the metabolic processes by the toxic effects of the drug. In commenting upon Durig's work an editorial writer in the *Journal of the American Medical Association* remarks that we cannot point out too emphatically that they do not commit us to the proposition that alcohol is an excellent or even advantageous food, and that to acknowledge it is a food is not to deny that it is also a dangerous one. If it is taken too freely, it is not completely oxidized and its evil effects on the nervous system are undeniable. While it may have its occasional uses, especially in illness, to encourage its use in the regimen of daily life on the grounds of nutritive necessity would be indefensible.

WOOD ALCOHOL. This substance is known to be an insidious and dangerous poison, exercising a selective action upon the nervous tissues. But, while many cases of blindness or death have been reported, until lately very little has been found out concerning its action upon the blood. Miura undertook the study of this subject and added some new and important facts to our knowledge of the subject. According to this investigation the blood-forming tissues are seriously affected by the poison. There is a production of anemia, with a decrease in certain of the white blood corpuscles, an attendant albuminuria, and the appearance of bile pigments in the urine. In Hungary, where it is the custom to drink tea flavored with rum, there occurred some years ago a number of cases of blindness, and investigation brought out the fact that brandy and other liquors were producing this blindness and in some cases death. It was found by Telletar that the toxic agent was wood alcohol, which is manufactured in Hungary for industrial purposes. Continued investigation disclosed the fact that even prolonged working with paints containing wood alcohol may cause blindness, simply from inhalation of the fumes. In one factory several workmen were found suffering from beginning atrophy of the optic nerve, and legal steps were taken to protect workmen thus engaged. See also CHEMISTRY, INDUSTRIAL, and INSANITY.

ALFALFA. The reports from alfalfa-producing countries in 1913 indicated an average yield. Definite figures as to production were not available for many countries and hence statements regarding the world's production must be always based on general estimates. Germany produced 1,830,000 tons of alfalfa hay, the average yield being 2.95 tons per acre, as compared with 1,642,000 tons in 1912 and 1,203,300 tons in 1911, with average yields per acre of 2.48 and 2 tons respectively. The latest data on production and acreage in the United States were published in connection with the census of 1910. The area devoted to the crop is continually increasing and in 1913 was estimated at more than 5,000,000 acres. Statistics published during the year by the State of Nebraska, one of the leading alfalfa States, showed that since 1909 its acreage had increased more than one-third and in 1913 amounted to about 850,000 acres, or over one-fifth of the total acreage in hay within the State. The year's production in this country was estimated at 90 per cent. of a normal crop. An open and dry winter in the principal alfalfa regions of the Mississippi Valley proved unfavorable to newly sown alfalfa, but well established fields suffered little or no injury. The first cutting was generally very good in quality and quantity, but the later cuttings over the larger part of the unirrigated region were reduced in yield and quality by the prolonged drouth which characterized the season.

The value and adaptability of alfalfa were still further demonstrated during the year in an experimental way. Feeding experiments at the South Dakota Experiment Station showed that the yellow flowered alfalfa (*Medicago falcata*) is second in feeding value only to the common purple-flowered species (*Medicago sativa*). The Illinois Experiment Station showed that 4 tons of alfalfa hay can be produced per acre and compared with 1½ tons of timothy hay, and that, with timothy hay at $10.00 per ton, an acre of alfalfa hay was worth $68.44 more for milk production when milk sold for $1.30 per 100 lbs. The New Jersey Experiment Station determined the milk value of an acre of alfalfa at $74.00. Work on the artificial curing of alfalfa was carried on by private parties in southern Missouri during the year with promising results. The State of South Dakota appropriated $10,000 for the further importation of hard Siberian kinds of alfalfa and an additional $15,000 for their distribution and establishment within the State. A campaign for alfalfa culture which attracted widespread attention was conducted throughout the country by Prof. P. G. Holden with the support of the International Harvester Company.

ALFONSO XIII., ATTEMPTED ASSASSINATION OF. See SPAIN, *History*.

ALGERIA. A country of north Africa; sometimes called a colony, actually an integral part of the French Republic. Capital, Algiers.

AREA AND POPULATION. The area by departments (in square kilometers), the population, European and native, according to the census of March 5, 1911, and the density per square kilometer are shown in the following table:

Departments	Sq. kms.	Europeans	Natives	D
Algiers	54,540	271,767	1,421,819	31
Constantine	87,302	155,654	1,945,443	24
Oran	65,897	319,089	892,212	19
Algeria proper.	207,739	746,510	4,259,474	24
Southern territories	367,550	5,533	481,052	1
Total	575,289*	752,043	4,740,526	10

* 222,119 sq. miles.

Algiers had in addition the population counted apart 27,295, making total population 1,720,881; Constantine, 17,349—total 2,118,446; Oran, 18,894—total 1,230,195. Total Algeria proper, 5,069,522. Southern Territories: 7721 counted apart—total 494,306. Total Algeria, 5,563,828. Total number of births in 1910, 148,635 (of which, 21,378 European); deaths, 106,619 (13,003); still-births, 2065 (716); marriages, 41,294 (5605). Algiers had (1911) 172,397; Oran, 123,086; Constantine, 65,173; Bône, 42,039; Tlemçen, 39,874; Blidah, 35,461; Tizi-Ouzon, 31,404; Sidi-bel-Abbès, 30,942; Philippeville, 27,137.

PRODUCTION. In 1910 the area under vines was 152,100 hectares, producing 8,414,000 hectoliters of wine; under cereals, 3,001,000 hectares, 22,147,000 quintals; roots, legumes, etc., 89,300 ha., 1,319,000 qs.; forage plants and sown grasses, 26,000 ha., 822,000 qs.; natural pastures, 851,000 ha., 3,871,000 qs. harvested; number of fruit trees in bearing, 9,985,000; number of olive trees, 6,655,000, producing 3,364,000 quintals of olives, 351,000 hectoliters of oil. In the table below are shown area under principal cereals, production in quintals (1912 and 1913), and production per hectare (1912):

	Hectares		Quintals		Qs.
	1912 *	1913 †	1912 *	1913 †	ha.
Wheat *a*.	1,110,233	952,568	5,421,511	7,500,000	4.9
Barley...	1,388,212	1,275,551	7,160,292	10,898,085	5.2
Oats.....	192,460	217,932	1,972,713	2,608,868	9.8
Vines *b*..	....	....	6,671,181	7,430,738	...

* Actual. † Provisional. *a* Excluding the department of Algiers. *b* Production in hectoliters of wine.

Livestock, 1911: 226,764 horses, 192,484 mules, 279,315 donkeys, 1,113,952 cattle, 8,528,610 sheep, 3,861,847 goats, 110,012 swine.

Iron, copper, quicksilver, zinc, and lead mines are worked.

COMMERCE AND COMMUNICATIONS. The general commerce of the country is shown below for five successive years in thousands of francs:

	1907	1908	1909	1910	1911
Imports..	475,998	476,343	482,997	543,197	611,619
Exports..	365,800	345,288	357,650	544,919	548,510

The special trade amounted in 1910 to 511,967,000 francs and the exports to 513,267,000. The principal exports (special trade) and values (thousands of francs) in 1911 were: Wine, 207,698; cereals, 80,492; live animals, 34,193; table fruit, 15,902; iron ore, 12,000; phosphates, 10,977; tobacco, 10,047; zinc, 9925; cork, 9784; legumes, 9718; wool, 8184; skins, 7837; esparto, 7166; flour, 6031; vegetable fibre, 4677; olive oil, 4489; potatoes, 3611; potassium 3565; semolina, 3542; spirits, 3496; fish, 3130; bran, 2517; lead, 2396. The imports from France in the special trade (1910) amounted to 437,896,000 francs out of a total of 511,967,000 francs; the exports to France, to 410,367,00 out of a total of 513,267,000. Morocco ranked second and the United Kingdom third in the list of countries of origin. Vessels entered in the 1910 trade, 5003 of 5,691,063 tons. The merchant marine included, January 1, 1911, 980 vessels of 31,771 tons.

There were in operation, December 31, 1911, 3297 kilometers of main railway line, and 150 kms. of local line. The telegraph lines comprehended 15,199 kms., and the wires 39,652. Post offices, 661; telegraph offices, 720; telephone stations and offices, 7398.

FINANCE AND GOVERNMENT. The revenue for 1908 amounted to 115,186,178 francs and the expenditure to 108,078,035 francs; 1911: 141,029,548 and 125,086,215. The budget for 1912, as voted December 29, 1911, estimated the total receipts at 145,167,014 and the total expenditure at 145,155,971 francs; budget of the Southern Territories: 6,523,301 francs revenue, 6,513,284 francs expenditure. The 1913 budget, as voted December 27, 1912, estimated the revenue at 157,225,334 francs (of which 42,470,000 francs extraordinary, 50,078,764 indirect taxes, customs, stamps, etc., 14,063,086 direct taxes, 9,133,391 posts, telegraphs, etc., 29,378,058 *recettes d'ordre*); the expenditure was estimated at 157,196,940 francs (debt charge 25,012,056, interior 27,370,159, public works, 20,647,538, posts and telegraphs 13,328,265, extraordinary 42,470,000).

Each department has a senator and two deputies in the national assembly, which has sole legislative authority in Algeria. A governor-general represents the republic and administers the country (1913, M. Lutaud).

ALGIN. See CHEMISTRY, INDUSTRIAL, under *Paper*.

ALIENS. See IMMIGRATION.

ALLEN, CHARLES, died January 13, 1913. He was born in Greenfield, Mass., in 1827, and graduated from Harvard College in 1847. In 1850 he was admitted to the bar, and practiced law in Greenfield until 1862, and after that in Boston. From 1861-67 he was reporter of decisions of the Supreme Judicial Court of Massachusetts. From 1867-72 he was attorney-general of the State; in 1881 chairman of the commission to revise the statutes of Massachusetts; in the following year appointed chief justice of the State Supreme Court, in which capacity he served until 1898. He wrote: *Allen's Massachusetts Reports* (1861-69); *Telegraph Cases* (1873); *Notes on the Bacon-Shakespeare Question* (1900).

ALLOYS. See CHEMISTRY, INDUSTRIAL.

ALSACE-LORRAINE. See FRANCE, *History*; and GERMANY, *History* (*Zabern, or Saverne, Incident*).

ALTERNATORS. See DYNAMO-ELECTRIC MACHINERY.

ALTMAN, BENJAMIN. An American merchant and art collector, born in 1840, died October 7, 1913. He started business in a small store in Sixth Avenue between 20th and 21st streets, about 25 years before his death. The business was successful from the first, and five years later it removed to Sixth Avenue and 19th Street. Additions were made to this store, until it became one of the most imposing department stores in New York. In 1905 Mr. Altman erected a large store on the east side of Fifth Avenue, between 34th and 35th streets, and in 1913-14 an addition to this was erected on 34th Street and Madison Avenue. This made the establishment one of the largest department stores in the world. While Mr. Altman was a most successful merchant, he was perhaps better known as an art collector. He employed his leisure time in forming a large and remarkable collection of old masters. His collection of Rembrandts, 14 in number, is believed to be the largest in the United States. In 1912 he purchased Velasquez's portraits of King Philip IV. of Spain, and his minister Olivares; it is said that he paid for these nearly $1,000,000. The collection also included pictures of Filippo Lippi, Holbein, Francia, and Botticelli. His Chinese porcelains, rugs, and crystals were of great beauty and value. Mr. Altman died without near relatives, and left his business to be directed largely for the benefit of the employes, to whom he made in addition large bequests, varying with the length of service. The greater part of his collections were left to the Metropolitan Museum of Art, New York City, and they represent perhaps the largest single gift ever made to that institution. Mr. Altman's estate was valued at about $30,000,000.

ALUMINUM. The production of aluminum in the United States in 1912 was by far the greatest in any year in the history of the industry. There were produced 65,607,000 pounds, compared with 46,125,000 in 1911, and 47,734,000 in 1910. The total production since the beginning of the industry in 1883 is 305,358,779 pounds. The total value of the exports of aluminum in 1912 was $1,347,621, compared with their value in 1911 of $1,158,603. During the year the Southern Aluminum Company, with a capital of several million dollars, was organized by an amalgamation of aluminum producers in France, Switzerland, and the United States. The company carried a water-power site at Yadkin River near Whitney, North Carolina, and made immediate plans to erect a plant with a large capacity for the manufacture of metallic aluminum. The Aluminum Company of America secured during the year rights in North Carolina and Tennessee, and planned the development of water-power for use in an aluminum plant to be constructed at such a point as will insure good freight rates and an adequate labor supply. The company has also made additions to this plant at Massena, N. Y., which, when completed, will be one of the largest in the world. A recently developed branch of the aluminum industry is the manufacture of powdered metal known to the trade as aluminum-bronze powder, and used extensively as a paint pigment, in explosives, in lithographing, and in printing. Aluminum foil has largely displaced tin foil for wrapping articles such as cheese, candies, tobacco, etc. The use of metallic aluminum in the manufacture of cooking utensils and other articles of domestic use is being extended on a much larger scale than in previous years. Successful experiments have been made in bringing aluminum to a liquid condition so that it may be spread, when cold, over any dry surface. The composition is applied like paint with a brush, and looks when spread like a dull silver coating.

See also CHEMISTRY, INDUSTRIAL.

WORLD'S PRODUCTION OF ALUMINUM
(As reported by Metallgesellschaft, Frankfurt a. M., in Metric Tons—2204.62 pounds)

	1910	1911	1912
United States	16,100	18,000	18,000
Canada	3,500	2,300	8,300
Germany Austria-Hungary Switzerland	8,000	8,000	12,000
France	9,500	10,000	13,000
England	5,000	5,000	7,500
Italy	800	800	800
Norway	900	900	1,500
Total	43,800	45,000	61,100

AMATEIS, LOUIS. An American sculptor and designer, died March 18, 1913. Born in Turin, Italy, in 1855, graduated from the Turin Institute of Technology in 1880, he studied in Paris and Milan, removing in 1883 to New York City, where he remained until 1892, when he was appointed head of the department of fine arts at George Washington University. Here he remained until 1899. Among his best-known works are the bronze doors on the west main entrance of the Capitol at Washington, and busts of President Arthur, James G. Blaine, and Andrew Carnegie.

AMEN, HARLAN PAGE. An American educator, died November 9, 1913. He was born at Sinking Spring, O., in 1853, and graduated from Harvard University in 1879. After teaching in several academies until 1895, he was appointed principal and professor of Latin at Phillips Exeter Academy. He was prominent among the educators of the country, and received the degree of A. M. from Williams College in 1886, and Litt. D. from Dartmouth College in 1911.

AMERICA CUP CHALLENGE. See YACHTING.

AMERICAN ASSOCIATIONS AND SOCIETIES. For any organization whose official title begins with the word American, see distinctive title.

AMERICAN SUGAR REFINING COMPANY. See TRUSTS.

AMERICAN TELEPHONE COMPANY. See TRUSTS.

AMERICAN TOBACCO COMPANY. See TRUSTS.

AMHERST COLLEGE. An institution for higher education, founded in Amherst, Mass., in 1821. The students enrolled in all departments in the autumn of 1913 numbered 425; the faculty numbered 50. There were no noteworthy changes in the faculty during the year and no notable benefactions were received. The productive funds amount to about $2,670.000, and the annual income to about $230,000. The library contains about 105.000 volumes. The president is Alexander Meiklejohn.

AMMONIA. See FERTILIZERS.

AMPANGABEITE. See MINERALOGY.

AMPHIBIA. See ZOÖLOGY.

AMUNDSEN. See POLAR RESEARCH AND EXPLORATION.

ANÆMIA, MINERS'. See HOOKWORM.

ANÆSTHESIA. Crile's observations on the behavior of animals and persons under anæsthesia and the relation of anæsthesia to surgical shock, led him to adopt a special method of preparing patients for surgical operation, and for selecting an anæsthesia, to which he applies the term "anoci-association." He holds that while the conscious brain is asleep the subconscious mind is alert and impressionable to painful sensations; that is, while certain cells of the brain are unconscious, other cells are wide awake and endeavoring to escape the injuries incident to the surgical procedure. This belief is based on the observation that changes in the pulse, respiration, and blood-pressure accompany every attack upon the tissues, and leads to the conclusion that these changes represent an effort to escape from injury. He compares this condition with that which would occur if a patient were operated upon while under the influence of curare, when the patient, while not able to move or utter a sound, would be perfectly conscious and alive to pain sensations. It has been shown that animals subjected to injury, while under the influence of curare and morphine, succumb to shock much more readily than they do under ether. The object, then, of the surgeon should be to spare the patient from psychic as well as physical shock and to disconnect temporarily the brain from the field of operation. In all parts of the body there are innumerable nerve receptors. Some of these have the function of protecting the body against harmful or nocuous contacts. These are called "nociceptors," and they are found most abundantly in those parts of the body which in the course of evolution have been subjected to injury; as, for example, the hands and feet. In the protected parts of the body there are few nociceptors, and in the brain, which has always been protected by the skull, none are found. That is, the brain possesses no pain sense. Injury of an area having nociceptors leads to an exhausting discharge of nervous energy. But equally exhausting discharges of energy may be produced through the special senses, such as hearing or seeing a dangerous enemy. Whatever the cause may be, the stimulus is always through the awakening of associative memory. Harmful or nocuous associations are called noci-associations, and when an operation is so carried out that all harmful or noci-associations are eliminated, this state is termed "anoci-association," and it is this state which Crile aims to induce at all surgical operations. The method is briefly as follows. The patient is brought into the best possible mental attitude toward the operation. Where possible a preliminary injection of morphia combined with scopolamine is given, and the management of the patient up to the point of the general anæsthesia is in the hands of nurses, orderlies and physicians who are, in Crile's phrase, "humanitarian psychologists." For short operations and in fact whenever possible, nitrous oxide is used for general anæsthesia. While under the anæsthetic the brain is entirely sundered from the field of operation by local anæsthesia, induced by infiltration with a solution of novocain. The utmost gentleness and accuracy in handling the tissues is observed. Finally, at the end of the operation, an injection of quinine and urea hydrochloride is given, so as to cut off the zone of operation from communication with the brain, thereby eliminating postoperative pain. By using the above technic Crile claims to attain a practically shockless operation.

Spinal Anæsthesia. In spite of the occasional ill results of this method of anæsthesia a great many operations have been done, especially by European surgeons. Bedeschi used stovain in 924 cases, in 2 of which there was serious collapse, although the patients did not die. In 10 per cent. there was urinary, and in 30 per cent. fecal incontinence; 2 cases suffered severe paralysis of the legs, which persisted for months. These untoward results led to the discontinuance of the spinal method at Ravenna, where Bedeschi performs his operations. Helm reported 1419 cases by the spinal method, including 105 cases of entire failure to produce anæsthesia. The after-effects were as follows: In 20 per cent. there was headache, 30 per cent. fever, in 6 strong young men meningitis occurred, with one fatality. One hundred and seventy-four patients had suffered subsequently from persistent headache, paresthesia and neuralgia in the legs, and in one case symptoms resembling locomotor ataxia. All finally recovered. The tendency among American surgeons was to avoid this form of anæsthesia except in carefully selected cases.

Local Anæsthesia. Lundgren induced local anæsthesia by sataphoresis, sending into the tissues a solution of cocain and adrenalin by means of a continued electric current at a tension of 110 volts. Complete local anæsthesia was thus produced in ten minutes and lasted about sixteen minutes, when employing one milliampere of current; with two milliamperes anæsthesia was induced in five minutes and lasted eighteen minutes, and with two milliamperes used for ten minutes the anæsthesia was lengthened to twenty-seven minutes. Various other combinations of time and strength of solution were experimented with, all going to show that anæsthesia could be controlled both as to completeness and duration by the strength of the current, its length of application, and the strength of the novocain solution.

ANAPHYLAXIS. See Diphtheria.

ANARCHISTS. See Socialism.

ANARCHY. See Socialism.

ANTARCTIC EXPLORATION. See Polar Exploration.

ANELIDA. See Zoölogy.

ANGLO-AMERICAN ARBITRATION. See Arbitration, International.

ANGLO-AMERICAN EXPOSITION. See Expositions.

ANGOLA. A Portuguese colony in western Africa. Estimated area, nearly 500,000 sq. miles; estimated population, 4,200,000. Capital, St. Paul de Loanda. The imports in 1910 were valued at 6,022,294 milreis (5,674,861 milreis in 1909); exports, 3,311,863 (3,485,085); transit, 326,349 (326,349). Vessels entered in the 1910 trade, 479 (1741 in 1909), of 941,000 tons (1,005-000). The budget for 1910-11 showed revenue 2,321,373 milreis, and expenditure 3,171,373. Railways in operation (1912), 1036 kilometers. The railway from Lobito to Benguella on the southwest coast of Africa was completed during the year to 323 miles from Lobito. Telegraph lines, 4236 kms.; stations, 119; post offices, 481. A governor-general administers the colony—N. de Mattos in 1913.

ANIMAL DISEASES. See Veterinary Science.

ANKYLOSTOMIASIS. See Hookworm Disease.

ANNAM. A French protectorate on the China Sea; a part of French Indo-China (q.v.). It lies south of Tongking and extends as far as Cochin-China, between the coast and a parallel chain of mountains—a length of about 1200 kilometers. It has fertile, well-watered plains and a hot moist climate. Tropical fruits, sugar cane, cotton, indigo, rice (near the coast), and cinnamon thrive; the mountains bear forests of teak and ebony, and enclose hoards of coal, iron, gold, silver, copper, lead, tin, zinc, etc. All Annamese provinces produce silk of a superior quality. The trade is included with that of French Indo-China. The single route of communication is the Mekong, roads properly so-called being unknown. A railway (103 kilometers) connects Hué with Tourane, with an extension to Quang-tri. A line from Saigonto Nha-trang is under construction. Duy-Tan (born 1899, succeeded 1907) is the native king and nominally administers the country under a council of regency. The French resident in 1913 was J. F. Charles. The local budget balanced for 1912 at 3,250,462 piasters.

ANNIVERSARIES. See Arbitration, International; and Expositions.

ANTHRACITE COAL. See Coal.

ANTHRAX. See Serum Therapy.

ANTHROPOLOGY. Antiquity of Man and Physical Anthropology. The remarkable find made in December, 1912, by Dawson near Piltdown, Sussex, aroused considerable discussion. Its interest lies in the fact that it differs both from the Neandertalers and *Pithecanthropus*, so that Dr. Smith Woodward goes so far as to assign it not only to a new species, but even to a new genus, *Eoanthropus dawsoni*. The remains consist of part of the left side of the skull and part of the right side of the lower jaw, with two molars, to which there has recently been added a canine tooth discovered by Father Teilhard. Dr. Woodward estimates the brain-capacity at about 1070 ccm., and believes the individual to have been of female sex. There is a striking incongruity between the jaw and the upper part of the skull. The forehead is much higher than in the Neandertal finds, and brow-ridges are but weakly developed, so that from these points of view the find is distinctively human. On the other hand, the symphysis of the jaw is characterized by a little piece of bone absent from the Neandertal and Heidelberg mandibles, but shared by the chimpanzee. Thus, while the upper parts of the find are quite human, the jaw seems more primitive than any jaw hitherto found containing human teeth. Woodward's interpretations have been contested by Professor Keith, who assumes a much higher cranial capacity and in general combats the primitiveness of the skull. The Sussex remains are probably contemporaneous with the unworn paleolithic implements of Chellean type in the same deposit, which fixes their age as Early Pleistocene.

A good and up-to-date popular account of the antiquity of man, embodying even so recent a find as the Sussex skull, was given by Buttel-

Reepen in *Man and his Forerunners* (translated by A. G. Thacker, London, 1913). A fuller description of the Sussex find was given by Professor MacCurdy in the *American Anthropologist*, 1913, pp. 248-256. One of the most comprehensive and valuable of recent works on early man was published by Professor Hugo Obermaier under the title *Der Mensch der Vorzeit*. Written by a devout Catholic, it gave exceptionally conservative estimates of the periods of cultural development; nevertheless, the minimum figure of 50,000 years is given for the time that has elapsed since the appearance of paleolithic man, and the age of the Heidelberg jaw is set at twice that figure.

Prof. Eugen Fischer attacked the important problem of miscegenation in a work on *Die Rehobother Bastards und das Bastardierungsproblem beim Menschen*, of which he himself summarizes the most important results in *Die Naturwissenschaften*, 1913, p. 1007 *et seq.* The inter-marriages of Boers and Hottentots studied by Fischer indicate Mendelian inheritance of racial traits. He finds no prepotency of racial types as such, but only of single traits. In point of eye and hair color "dark" is dominant and in hair form "frizzly" predominates over "straight," but the high narrow European nose causes a recession of the low, broad Hottentot organ. Skulls do not tend to produce an intermediate form, in which point Fischer's results confirm Boas's. It is the very fact of Mendelian inheritance that is required, in Fischer's opinion, to prove that given traits are genuinely racial characteristics, otherwise they might be assumed to be effects of environment. Fischer further approaches the problem of the unity of the human species. In favor of unity two arguments are adduced. First, since Mendelian inheritance occurs in man, the human races are probably as closely related as the animal and plant varieties of which the investigation established Mendel's rules, that is to say, the races of man represent but a single species. Secondly, the Hottentot-European breeds display for many generations an unlimited degree of fertility.

In two articles, "Changes in the Bodily Form of Descendants of Immigrants" (*American Anthropologist*, vol. 14, p. 530 ff.) and "Veranderungen der Körperform der Nachkommen von Einwanderern in Amerika" (*Zeitschrift für Ethnologie*, 1913, p. 1 ff.), Professor Boas answers criticisms advanced against his recent investigations. He shows that the number of cases measured and the statistical treatment of the series establish most of the changes as real. A slight instability of types under a new environment thus results beyond question. Boas admits his inability to interpret the observed phenomena, but is able to refute certain explanations advanced by others. More particularly he contends that natural selection does not account for the changes noted, for otherwise we should have to assume most complex relations between mortality and bodily form. It is possible that the change from a rural to an urban mode of life was a determining condition, but this is not yet demonstrated, and even if it were the character of the influence of urban and of rural life is as yet unknown. In short, the fact of a certain degree of racial plasticity (as opposed to permanence) remains, but remains as yet unexplained. In a later article, "The Head Forms of the Italians as Influenced by Heredity and Environment" (*American Anthropologist*, vol. 15, p. 163 ff.), Boas and Miss H. M. Boas, examine Livi's data on the cephalic index found in different parts of Italy and find that "the observations of the city-born population necessitates the assumption of a direct influence of city life on the cephalic type."

ETHNOLOGY

THEORETICAL WORK. In ethnology, theoretical discussion continued to centre in a relative evaluation of the three principles that purport to explain similarities in distinct tribes,—the psychic unity of mankind, historical contact, and convergence. The last-named concept was borrowed from biological literature by Thilenius and von Luschan, and first clearly defined by Ehrenreich. When two phenomena originally different become similar or identical, they illustrate the process labeled "convergence." Graebner denied (1910) that any similarities could be *proved* to have resulted by this or any other process of independent development, and explained all similarities by historical contact. Lowie (1912) assailed this position, showing that many of the similarities thus explained by Graebner were superficial analogies, not genuine homologies, erroneously classified together, mainly through ignorance of their psychological setting. On the other hand, Lowie expressed extreme skepticism as to whether genuine resemblances have ever developed by convergence. Laufer indorses the psychological point of view advocated by Boas, Lowie, and other of Graebner's critics, and accepts Lowie's definition of convergence, for which process he furnishes a striking illustration in *Dokumente der indischen Kunst* (Leipzig, 1913). In China painting developed in close connection with calligraphy. As writing was originally nothing but a series of ornaments that were interpreted as symbols, we may therefore say that in China painting originated from decorative art. In ancient India no such course of development existed, for no system of ornamental penmanship existed there. Here physiognomic symbols gave the principal impulse to the development of art. Thus the development of painting in China and India has not followed the same course. There have been two distinct lines of development terminating at points similar in appearance and grouped together under the caption "painting." Goldenweiser attempted to supplement Lowie's treatment in an article on "The Principle of Limited Possibilities in the Development of Culture" (*Journal of American Folk-Lore*, 1913, pp. 259-290). This author defined as genuine convergence "the independent development of psychologically similar cultural traits from dissimilar or less similar sources, in two or more cultural complexes." He argued that both the objective and the psychic aspects of culture are limited in number, thus leading the true convergence. Thus, social divisions regulate marriage, figure as ceremonial units, etc., and often in quite different cultures the same individual functions occur in connection with the same kind of social divisions. Goldenweiser contended that true convergence is of frequent occurrence and that to assume its existence involves fewer hypothetical elements than to assume parallel development; indeed, parallelism itself involves convergence. However, he does not claim that the principle of convergence by itself adequately accounts for the psychology of the process involved, being in this regard on a level with diffusion and parallelism.

AMERICA. Lowie and Wissler have continued their studies of the military societies of the Plains area. In his *Societies of the Crow, Hidatsa and Mandan Indians* Lowie points out that the Crow societies in question are purely secular clubs, two of which engaged in active rivalry both in war and love, and most of which were alternately called upon to exercise police duties. Unlike other tribes, the Crow did not exact an initiation fee in any of the clubs. The predominant idea was rather that a dead member should be replaced by a relative, who ordinarily instead of paying a fee received gifts to make him join. The Crow societies were not graded in any way and normally membership was for life. Among the Hidatsa and Mandan, oddly enough, there is much correspondence in detail with the Crow conditions, but a complete difference of principle. Entrance into a society is not an individual affair, but occurs in groups; the novices are obliged to purchase their way by a heavy payment, both collective and individual; and the societies are graded in rank, younger groups buying membership in the higher societies from older groups. Though objectively the societies thus come to represent age-grades, the fundamental idea of the system is that of purchase, for whenever for some abnormal cause a man did not buy a new society he kept his membership in the old one indefinitely regardless of age, while a man might also hold membership through purchase in several societies at the same time. The Blackfoot scheme, as described in Wissler's *Societies and Dance Associations of the Blackfoot Indians*, closely resembles that of the Hidatsa. There were no definite age requirements for any one organization, but there was a conventional order for passing from one to another, the change taking place every fourth year. Naturally the Blackfoot apply their general procedure of ceremonial tranfser to the acquisition of membership privileges, the regalia of the societies corresponding to medicine bundles. Most interesting is the native theory that the societies were graded in point of their historical antiquity among the Blackfoot, the more recently introduced organizations having been added to the bottom of the series.

Dr. Spinden has published *A Study of Maya Art, Its Subject-Matter and Historical Development.* His most important contribution lies in the determination of the chronological sequence of the Maya monuments and a concordance with Christian chronology. Spinden rejects the suggestion of any ethnic connection between Central America and the Old World based on supposed similarities of culture. He also finds that there is no satisfactory evidence for connecting the pyramids of Central America with those of South America and the Mississippi Valley.

In "A Foreword on the Social Organization of the Creek Indians" (*American Anthropologist*, vol. 14, p. 593 ff.) Dr. Swanton summarized some of his important investigations among the southeastern tribes of the United States. The Creek confederacy was built up of several tribes, the majority of which speak Muskhogean languages. Irrespective of language, the towns occupied by the tribes were grouped into two moieties, which may have been associated with war and peace and always formed the line of cleavage in ball games. Distinct from this dual division is the division of most tribes into exogamous clans, several of which are again linked together in social units of a higher order than may be called "phratries," to which the exogamous rule generally extends. Over and above all these divisions is a tribal grouping of clans in two moieties, which appear in practice games. There are thus at least four distinct modes of grouping among the Creek: The clans, phratries, and moieties within any one tribe of the confederacy, and the dual division of all the tribes of the league.

M. R. Harrington's "A Preliminary Sketch of Lenâpe Culture" (*American Anthropologist*, vol. 15, p. 208 ff.) refutes a widespread notion that the three large subdivisions of the Lenâpe were merely geographical in character. They seem, on the contrary, to have been totemic phratries subdivided into many clans bearing nicknames. The clans were strictly exogamous, but it is not certain whether this rule ever applied to the phratries.

Considerable interest has developed in the study of kinship terms. Starting from John P. Harrington's list of Tewa terms, Sapir points out (*American Anthropologist*, vol. 15, p. 132 ff.) that the use of reciprocal terms, that is, of the same term by both members of a pair of related persons, is shared by the Tewa and the linguistically unrelated Shoshonean tribes. This suggests that systems of kinship terms may be correlated with definite geographical areas. On the psychological side of the problem Goldenweiser advances the theory (*ibid.*, p. 288 ff.) that where a term is applied both to relatives by blood and their fellow-clansfolk the meaning of the word was originally limited to the blood-relatives and secondarily extended to include the others. Among the archæological publications of the year may be mentioned Dr. Fewkes' "Casa Grande, Arizona" (28th *Annual Report Bureau American Ethnology*).

Indian linguistics continue to be cultivated with assiduity by an increasing number of scholars. Professor Uhlenbeck contributes serially notes on the morphology of Blackfoot, and Dr. Josselin de Jong has published a collection of Ojibwa texts, while Dr. Michelson (28th *Annual Report Bureau American Ethnology*) offers a "Preliminary Report on the Linguistic Classification of Algonquian Tribes." The Franciscan Fathers of St. Michaels have issued *A Vocabulary of the Navaho Language.* Through the efforts of the International School of Archæology at Mexico City order is brought into the classification of Mexican languages, as shown by Mechling's "The Indian Linguistic Stocks of Oaxaco. Mexico" (*American Anthropologist*, vol. 14, p. 642 *et seq.*). For South America Professor Chamberlain has attempted a similar survey of "Linguistic Stocks of South American Indians, with Distribution Map" (*American Anthropologist*, vol. 15, p. 236 ff.).

OCEANIA. Father Schmidt (*Anthropos*, 1912, 1913) has continued his studies of Australian languages and brought out the important fact that these are not so homogenous as had formerly been supposed and can no longer be grouped together in a single stock. Homogeneity prevails only over the very much larger southern half of Australia, where all languages are united by resemblances of grammar and vocabulary. From the tribes speaking South Australian tongues there are sharply separated the natives occupying the territory beginning at Roebuck Bay in the west, extending along the 19th and 20th degree south latitude eastward, and terminating at Cape Flattery on the east; only in the centre the North Australian group passes far to the south (28th degree south latitude), including the well-known Arunta (Aranda) tribe. The North Australian languages are again divided into two or three distinct groups, one of which exhibits some similarity with the Papuan dialects of New Guinea. Father Schmidt draws an interesting comparison between his linguistic results and the sociological studies of Graebner. Most students had assumed that in Australia totemism and the dual division of tribes were genetically related phenomena, the current theory being that the two classes had become segmented into four, and sometimes eight, classes, by further subdivision of which there developed the totem groups. Graebner, on the contrary, maintained that totemism and the two-class system are distinct phenomena of which totemism with paternal descent was the earlier to develop in Oceania; that later a two-class system with maternal descent entered the area previously occupied by totemism pure and simple; and that finally, through combination of the two systems, there resulted the phenomena of totemism associated with maternal descent, of totemic divisions grouped in matrimonial classes, and of four-class and eight-class systems. Father Schmidt finds that the linguistic data furnish a curious confirmation of this sociological theory. The tribes with totemic groups speak languages quite distinct from those of tribes with the two-class system, and the purely totemic tribes speak older languages and have been driven into marginal positions. It must be emphasized, however, that these sociological parallels with Father Schmidt's doubtless important linguistic results have not yet been tested and accepted by other scholars.

A noteworthy paper by A. R. Brown entitled "Three Tribes of Western Australia" (*Journal Royal Anthropological Institute*, vol. xliii) tends to revolutionize our conceptions of Australian marriage regulations. These were commonly believed to depend primarily on bars to marriage imposed by the clan, class, and moiety systems regardless of actual relationship. According to Brown the fundamental fact is that a man may marry only a woman bearing to him a certain relation of consanguinity, the class rule being only a special application of this principle. Actual blood relationship, instead of being ignored by the Australians, is of greater importance in their social life than in ours. The kinship system constitutes a system of reciprocal duties and rights, an individual owing the same duties to all the persons to whom he applies the same term. Nevertheless, a difference exists between relatives called by the same term: though a man owes certain duties to his father, his father's brothers, and even distant cousins of his father, there is a clearly felt difference in his attitude toward these several kinsmen,—contrary to a theory long current in anthropological circles.

Thurnwald has published two volumes of his *Forschungen auf den Salomo Inseln und dem Bismarck-Archipel*, dealing mainly with the mythology, songs, and social organization of the German Solomon Islands. His remarks on the chief's status and on marriage regulations are especially noteworthy. There are three grades of chiefs. Those of the lowest order merely have the right to erect a town-hall, equip it with drums, and use it for the celebration of festivals. Chiefs of the second grade have among their subordinates members of other families than their own, as well as captives whose position resembles that of serfs. The highest chiefs have the right of exiling undesirable tribesmen, but their power is not absolute; they are simply foremost among their peers and do not exercise judicial functions. Marriage is not permitted between members of the same clan, but breach of this custom, though regarded as incest, is punished only by ostracism, condign punishment being left to the ancestral spirits. The clans bear the names of birds. Husband and wife respect each other's birds, both of which are tabooed to them.

Africa. A sensational theory was outlined by Frobenius in a semi-popular work entitled *Und Afrika sprach.* Archæological field research in Yorubaland led this writer to the discovery of a highly developed glass industry, indicating that the glass beads found in such quantities in the Dark Continent may in large measure have been manufactured on the spot instead of being imported from elsewhere, as has been commonly assumed. Equally noteworthy finds are attempts at portraiture in terra cotta and a monolith of triangular section said to have served as a chronometer regulating the period of certain sacred observances. Frobenius believed that the present inhabitants of Yorubaland are much inferior in cultural status to their predecessors on Yoruba soil; and as he finds no evidence of a gradual evolution toward the high-water mark of the ancient culture, he concludes that the old Yoruba culture was an importation from the outside world. Here the most original part of Frobenius's view sets in. Regarding the present system of divination, with relevant cosmological notions, as a remnant of the old culture, he discovers a far-reaching similarity between these customs and the corresponding practices of the ancient Etruscans. To this resemblance others are added, such as methods of burial and especially the type of Yoruba architecture with impluvium courtyards on the Roman style, so that historical contact with ancient Etruria seems established. The next question is, whether the various elements of Etruscan culture reached Yorubaland by an overland route or by way of the Strait of Gibraltar and the western sea route. Frobenius decides in favor of the latter alternative because intermediate stages are lacking in the Sahara and Sudan. This view he supports by documentary evidence that indicates, in his interpretation, often-repeated voyages by the Etruscans along the west coast of Africa. If corroborated by future research, Frobenius's theory will doubtless form a landmark in the study of African culture history.

Some current misconceptions are dispelled in volume i. of Tessmann's *Die Pangwe.* This group of tribes occupies the west coast of Africa, between the 1° south latitude and 5° north latitude, the best-known tribes being the Yaunde in the German Kamerun and the Fan(g) of French Equatorial Africa, while Tessmann's original researches deal largely with the intermediate population in Spanish Guinea. Tessmann points out that the Pangwe are quite distinct from the Mpongwe with whom they have been confused. He finds that the view broached by Du Chaillu as to the excessive cannibalism of the Pangwe, which has been uncritically copied by others, rests on the flimsiest evidence. In the north cannibalism seems to be wholly lacking; the central Fang devour the flesh of enemies only, and that in exceptional instances as an act of revenge, while the southern Pangwe practise anthropophagy somewhat more frequently, but not to any great extent. Trilles's theory that the Pangwe have migrated to their present home from the Bahr-el-Gazal district, is neither rejected nor adopted by Tessmann, who himself, however, believes in a migration from the northeast. From this point of view it appears improbable that European influence reached the Pangwe prior to the last decades of the nineteenth century, and accordingly, their cross-bow, in Tessmann's opinion, is not a copy of European models, but an original combination of the native spear and bow type.

For a number of valuable publications we are indebted to the British colonial officials. Of these, Mr. R. Sutherland Battray has published an extensive collection of *Hausa Folk-Lore, Customs, Proverbs*. As the Hausa scribes generally employ not only Arabic script but even the Arabic language to preserve their national records, Rattray adopted the novel method of having a scribe translate the manuscripts from Arabic into the Hausa dialect of Kano or Sokoto, and himself transliterated and translated into English. In this connection may also be mentioned the *Anthropological Report on the Ibo-speaking Peoples of Nigeria* by N. W. Thomas, government anthropologist. Another British official, P. Amoury Talbot, has published important data on the Ekoi of Southern Nigeria in his book *In the Shadow of the Bush*, which ably supplements Mansfield's account of those Ekoi residing in German territory. In particular it sheds light on the development of secret societies and clubs that is characteristic of West Africa. The most important of these organizations among the Ekoi is the Egbo (Leopard Club), which has been influenced considerably by the practices of the Efik tribe of Calabar. Even the smallest Ekoi village has its Egbo shed, and the chief of the club is by far the most influential man of the locality. There are no less than seven grades, entrance into some of which is very expensive. In former times, the non-initiated who approached the secret celebrations of the club were promptly executed. Politically and judicially, the Egbo was well-nigh all-powerful; the property of those who owed debts to members was mercilessly confiscated and, if necessary, the debtors were enslaved. But important as is the Egbo, it is only one of a very great number of organizations. Some of these have developed from age-classes, for the men and women respectively who are born within two or three years of one another form distinct age-classes which hold feasts and form self-governing bodies. Several of the clubs carefully guard their secrets from women; thus, no woman is allowed to see the bull-roarers employed by some of the organizations, and the art of stilt-walking is also concealed from the female sex. On the other hand, the women have a very sacred society of their own, during some of whose performances men must keep out of sight.

Asia. Fay-Cooper Cole has described *The Wild Tribes of Davao District, Mindanao*, with special reference to the Bagobo, who live on the west coast of Davao Gulf, and the Mandaya whose territory extends east of the gulf. Physically, there is great variation within each of the tribes dealt with, which is in part due to intermarriage of the Malays with the aboriginal Negrito pepulation, of which the influence becomes more and more obvious toward the interior. Everything considered, while the individual variation within any one tribe is very great, there is no fundamental difference between any two of the groups taken as units. In addition to this somatic unity there is corresponding dialectic similarity and even greater cultural homogeneity, though local developments in particular directions have taken place. Thus, the Bagobo have specialized in beadwork so as to excel all other natives of the archipelago in this form of art. Some of Mr. Cole's observations are of considerable comparative value and overthrow erroneous beliefs concerning the Davao District natives. Head-hunting for the sake of the trophy is not practised throughout the region, the skull being kept only long enough to prove the murder. Cannibalism does not occur except that warriors eat the livers and hearts of brave men in order to acquire their valor. There is no justification whatsoever for the statement that part of the natives of the district are white. With regard to the iron technique, Cole holds that the art is an ancient one throughout the archipelago, its disuse in some localities being due to various reasons, such as lack of material. In this connection the fact that the process used in northern Luzon is very similar to that of southern Mindanao is of interest.

Drs. Chas. Hose and Wm. McDougall have brought out a monumental treatise on *The Pagan Tribes of Borneo*. Under this head they consider the natives unaffected by Mohammedan influence, whom they group in six stocks,—the Sea Dayaks (or Ibans), Kayans, Kenyahs, Klemantans, Muruts, Punans. Though there is very great diversity of language in Borneo, these peoples conform, on the whole, to a single physical type. All are of moderate height; have nearly black or very dark brown hair, which is generally lank though sometimes wavy or curly; and their skin color ranges from a medium brown to a very pale *café-au-lait* hardly deeper than the color of cream. Mongolian traits appear commonly, though in varying degrees. Culturally the Punans stand lowest, differing from all the rest in their nomadic life and non-agricultural mode of subsistence. They construct rude shelters of sticks and leaves, hunt with blow-pipes, and gather the wild fruits of the jungle. While skilled in basketry, matting, and the preparation of blow-pipes, they obtain most of their other manufactured articles through barter with the other populations. These occupy villages along the river banks and depend for sustenance mainly on the cultivation of rice. In addition they breed pigs and fowls, hunt, and fish. The political organization is loose, except that a chief of powerful personality may rise to ascendancy. Socially, there is a division into an upper, middle, and lower class, the last-mentioned being composed of captives in war and their descendants. There is a strong tendency against marrying outside one's caste, but beyond this there is no restriction in the choice of a wife beyond blood relationship. That is to say, there are no clan divisions, but marriage with a sister, nephew, niece, uncle, or aunt is regarded as incest, and first-cousin marriage is disapproved.

SOCIETIES, MEETINGS. The Bureau of American Ethnology issued its Twenty-eighth Annual Report embodying researches by Drs. Fewkes and Michelson and a bulletin containing the concluding section of Miss Densmore's study of Chippewa music. Dr. Michelson and Dr. Swanton were continuing their investigations of Algonkian languages and Muskhogean ethnology respectively. The Peabody Museum (Cambridge, Mass.), equipped an archæological expedition to Guatemala under the leadership of Messrs. Merwin and Bishop. The American Museum of Natural History continued to support the researches of its staff among the Plains tribes (Drs. Wissler and Lowie) and the Woodland Indians (Mr. Skinner); Dr. Goddard visited the Northern Athapascans of the Peace River country; Dr. Spinden resumed work among the Rio Grande Pueblos, while Mr. Nelson completed his archæological reconnoissance of the same region and assisted in the exploration of a cave near Puente Viesgo, Spain. Under the auspices of the Geological Survey of Canada Dr. Sapir went to the Nootka of British Columbia; Dr. Mason visited the Athapascans north of Lake Athabaska; and Dr. Goldenweiser resumed his investigation of Iroquois sociology. The American Anthropological Association met in New York with the American Folk-Lore Society, December 29 to 31.

ANTIGUA. A presidency (with Barbuda and Redonda) of the Leeward Islands (q.v.). The land is fertile, low-lying, and forestless. Sugar-cane, cotton, and pineapples are cultivated on about 52,414 acres, but cultivation has declined of late years. The output of sugar in 1912 was 11,025 tons (molasses, 5344 puncheons); in 1911, 11,075 (5380); in 1911, 13,509 (5785). Barbuda raises cattle and in Redonda phosphate of alumina is mined. Trade (external, for calendar years) and finance (for fiscal years) statistics for the presidency follow:

	1908-9	1909-10	1910-11	1911-12
Imports	£175,587	£139,496	£170,038	£181,831
Exports	179,106	114,122	196,184	161,064
Revenue	51,502	48,583	52,326	52,292
Expenditures..	49,964	49,204	53,495	53,652
Shipping *.....	722,862	643,966	644,705	679,048

* Tonnage entered and cleared.

Customs revenue (1911-12), £31,250. Public debt, £123,700. Antigua is under the administration of the governor of the colony. The capital is St. John. See LEEWARD ISLANDS.

ANTI-MILITARISM. See SOCIALISM, *passim.*

ANTI-VIVISECTION. See VIVISECTION.

APTHORP, WILLIAM FOSTER. An American musical critic and author, died February 20, 1913. He was born in Boston in 1848. Most of his youth was spent abroad. He graduated from Harvard College in 1869, and afterwards taught harmony, first in Ryan's National College of Music and later in the New England Conservatory. He was best known, however, as a musical critic. For five years he conducted the musical department of the *Atlantic Monthly.* Two years later, in 1879, his first book, *Hector Berlioz: Selections from his Letters and Writings,* was published and was well received. For more than twenty years, beginning in 1881, he was musical critic of the Boston *Transcript.* He was editor of the *Cyclopædia of Music and Musicians.* Among his other published writings are: *Musicians and Music Lovers, By the Way,* and *The Opera, Past and Present.*

ANTWERP, PORT OF. See DOCKS AND HARBORS.

APPALACHIAN FORESTRY RESERVE. See FORESTRY.

APPLES. See HORTICULTURE.

APULIAN AQUEDUCT. See AQUEDUCTS.

AQUEDUCTS. The year 1913 witnessed the opening of the Los Angeles aqueduct and the advance towards completion of the great Catskill aqueduct for the city of New York. Progress on both of these great engineering enterprises has been described in previous issues of the YEAR BOOK.

LOS ANGELES AQUEDUCT. On November 5, 1913, there was dedicated the Los Angeles aqueduct, one of the largest and boldest engineering developments ever constructed for a municipal water supply. This project, which involved the construction of over 200 miles of conduits, tunnels, pipes, and canals, crossing deserts and mountains, was built almost entirely under the direct supervision of the city of Los Angeles, being in charge of William Mulholland, chief engineer, assisted by J. B. Lippincott. With the exception of nine miles of construction of the South Antelope division, two short steel siphons in the Jawbone division, and the commissary and medical departments, which were under contract, the work was done by the city and within the total appropriation of $24,500,000, voted as a bond issue. In addition the project was carried out within the estimated time, so that the Los Angeles aqueduct stood at its completion as one of the most notable monuments of municipal construction.

Designed to bring daily to the city 265,000,000 gallons of water, there was also involved the utilizing of the surplus waters for the irrigation of 135,000 acres of land near the city and for the future development of 120,000 horse power maximum electric energy. The intake of the new aqueduct is situated 35 miles above the mouth of the Owens River at a height of 3812 feet above sea level, but some 50 miles north of the intake a reservoir has been built at Long Valley to control the flow of the Owens River and the tributary extremes at times of excessive discharge so that the elevation of the maximum water surface is 6810 feet. The reservoir is formed by a dam 160 feet high and 520 feet in length, with a capacity of 340,980 acre feet and a surface area of 8686 acres. The capacity of the reservoir is sufficient to furnish a continuous flow through the aqueduct for 427 days. Further down the valley, six miles above the intake, is the Tinemaha reservoir formed by a dam 40 feet in height, having a capacity of 127,325 acre feet and a surface area of 7074 acres. From the intake the aqueduct for its 24 miles takes the form of an unlined canal with an average depth of 10 feet, a bottom width of 38 feet, a top width of 62 feet and a capacity of 801 sec. feet. This construction was effected by three electric dredges.

At the Alabama foot hills, where the aqueduct passes along the mountain side and passes Owens Lake, the canal is concrete lined, 30 feet in width, 12 feet deep, and extends a distance of 38 miles to the Haiwee reservoir. This reservoir has a surface area of 2100 acres and a capacity of 63,800 acre-feet, being seven miles long and from one-half to one mile in width. The reservoir site had at its centre a summit, so that it was found necessary to divide the reservoir and construct two dams. Its capacity is sufficient to furnish a continuous flow of water for 80 days. The next section consists of about 13 miles of covered conduit, formed of reinforced concrete with the interior plastered to secure the best conditions of flow.

The Little Lake section involves a small amount of covered conduit, 6.73 miles of tunnel and a siphon .272 in length, and next comes the Grape Vine section where there are 7.941 miles of covered conduit, 5.731 miles of tunnel, and 1.360 miles of siphon. The Freeman section is mostly covered conduit amounting to 18.7 miles, while the next section, which passes through the Jaw Bone Canyon, is 7.283 miles of covered conduit, 12.336 miles of tunnel and the remarkable Jaw Bone siphon of 2.589 miles in length. Across the Mojave Desert a covered conduit 28 miles in length is employed, while in the next, or Antelope section, there is covered conduit to the extent of 19.759 miles, tunnel amounting to 3.723 miles and siphon construction totaling 4.719 miles. The Elizabeth section, which includes the Fairmont reservoir and the Elizabeth tunnel 5.09 miles in length, the longest tunnel of the project, and a power waterway of 9.645 miles, leads to the final, or Saugus section, which includes 2.170 miles of covered conduit, 8.990 miles of tunnel, 3.040 miles of siphon and the dry canyon reservoir with a capacity of 1325 acre feet to regulate the fluctuating flow through the power plant. It is formed by a hydraulic fill dam 528 feet in length and 61 feet high.

The Ferando reservoir with a capacity of 23,000 acre feet is about one mile below the south portal of the last tunnel which marks the end of the aqueduct proper and was formed by a hydraulic fill dam which was nearing completion at the end of the year 1913. The completion of the Los Angeles aqueduct came as a very welcome addition to the water facilities of the city which, during the summer of 1913, were taxed to their utmost. The new system provides both for adequate water for domestic use as well as for irrigation and power, so that the future of the city is amply assured in this respect for many years to come.

The accompanying table shows the classification of work on the Los Angeles aqueduct.

Classification	Miles
Unlined canal	23.726
Lined canal	37.054
Covered conduit	97.641
Tunnels	42.903
Siphons	12.052
Flumes	0.165
Haiwee by-pass	2.001
Reservoir	7.870
Power tunnels and waterway	9.845

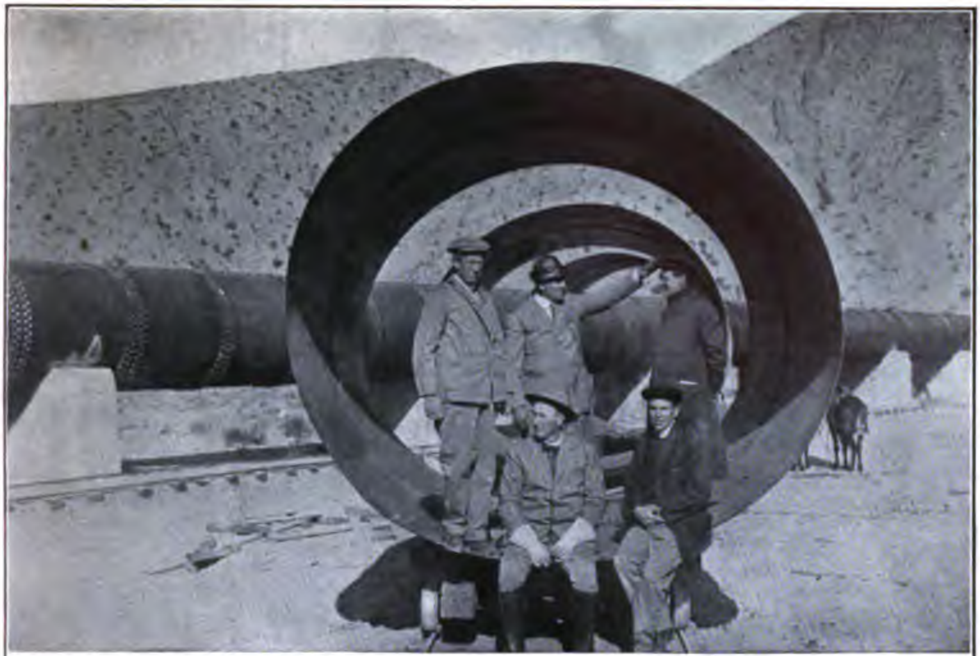
CATSKILL AQUEDUCT. The status of the work on the Catskill aqueduct at the end of 1913 was substantially as follows: The Olive Bridge dam of the Ashokan reservoir was nearly completed, but somewhat over a year would be required to clean up that reservoir, although during the year water had stayed in it up to a height of 540 feet above sea level, as compared with an elevation of 590 feet for a full water level in the west basin, and at the end of the year it was standing at a height of 510 feet. From the Catskill reservoir to the Croton aqueduct the 92 miles of aqueduct proper was practically completed and the conduit could be made available if needed any time to carry water by gravity into the Croton reservoir, although the end of 1915, or early in 1916, was the date fixed for delivering water to the city through the city pressure tunnels.

As showing the extent of the completion of the aqueduct from the Ashokan reservoir to the New York City line, where the city aqueduct tunnel begins, the following figures of December 31, 1913, regarding the progress, may be given: Cut-and-cover arch, total, 286,336 lineal feet; completed, 286,005 lineal feet; grade-tunnel arch, total, 71,939 lineal feet; completed, 70,906 lineal feet; pressure-tunnel arch, total, 92,740 lineal feet; completed 92,740 lineal feet; steel-pipe siphons, total, 33,066 lineal feet; completed, 33,066 lineal feet. A summary of these results shows that of a total of 484,144 lineal feet of aqueduct between the limits named (which does not include the city tunnel), 482,718 lineal feet had been finished.

As regards the reservoirs, the Hillview reservoir was about three-quarters done and its completion was expected by the end of 1915, while the Kensico reservoir, where was being constructed the vast Kensico dam (see DAMS), was about 40 per cent. completed, and it was expected that a portion of its storage capacity could be used by 1915, although the entire project could not be completed for some five years later. The Silver Lake reservoir on Staten Island was contracted for within the year, and tnere remained to be contracted for the aqueduct under the Narrows, the pipe line on Staten Island, and a section of steel pipe in Brooklyn. These were to be advertised and contracts awarded in 1914.

The city tunnel which is intended to distribute the water from the Catskill aqueduct from the Hillview reservoir near the Yonkers, N. Y., line, 18 miles in length, was practically completed at the end of the year so that the 110 miles of the aqueduct from the Ashokan dam in the Catskill Mountains to the terminal in Brooklyn, were finished. This tunnel passes from the Hillview reservoir under the Borough of the Bronx, the Harlem River, Manhattan Borough, the East River, to terminal shafts in the Borough of Kings.

Contracts were let in June, 1911, the work being divided into four contract sections, the contracts and their amounts being as follows: Contract 63, diameter of tunnel, 15 feet, distance, 4 miles, $3,709,372. Contract 65, diameter of tunnel, 15 feet and 14 feet, distance, 5.4 miles, $5,590,225. Contract 66, diameter of tunnel, 14 feet and 13 feet, distance, 4.4 miles, $4,512,605. Contract 67, diameter of tunnel, 12 feet and 11 feet, distance, 4 miles, $5,727,435.



A section of the Antelope siphon showing steel pipe ten feet in diameter.

One of the aqueduct tunnels in the Langas division. Open concrete lined ditch above Haiwee Reservoir.

LOS ANGELES AQUEDUCT

The headings of the Catskill aqueduct tunnel under East River, New York City, met on September 27. The meeting of the headings of this important section occurred about 750 feet below the river level and the alignment met within 0.17 feet and the stationing within 0.03 feet. Of the 17½ miles aqueduct from the Hill View reservoir near Yonkers to Atlantic Avenue, Brooklyn, there remained but little to be excavated at the end of the year and it was expected that the last headings between shafts Nos. 8 and 9, in the upper part of Manhattan Island, would meet early in the following January. The city, or distribution tunnel of the Catskill aqueduct was planned in the fall of 1909, and was reported upon by Messrs. Clemens Herschel, Francis L. Pruyn, and J. Edmund Woodman, on May 14, 1910. The scheme was authorized by the board of estimate and apportionment of New York City in July, 1910, and was approved by the State water supply commission in October. The contracts were let and work begun early in 1911. The pressure tunnel under the city, as well as other features of the Catskill aqueduct, was unprecedented in city water-supply distribution systems and its completion promptly and according to the engineers' plans and estimates, was considered a notable engineering achievement.

The Apulian Aqueduct. An important project in Italy, the Apulian aqueduct, was making substantial progress during the year. Twenty-four and two-tenths miles were added to the length of the main canal, of which 6.6 miles were in tunnel. Progress was also made on the Foggia, Lecce, and Bari branches, and the total work for 1913 was estimated at about 61 miles. The tunneling had been prosecuted under considerable difficulty due to the infiltration of water and this led to a delay in both the long Apennine tunnel and in the Monaco tunnel. On the other hand, the Ginestra tunnel, which passes in part through a volcanic formation encountered emanations of sulphurous hydrogen, but the work was well advanced and but 6.10 of a mile remained out of a total distance of 60 miles. See Dams, and Irrigation.

ARABIA. See Turkey.

ARBITRATION, International. The year 1913 was a quiet one in respect to international arbitration, though in a large measure that fact is due to arbitration itself, for paradoxical though it may seem to be, the more arbitration is developed the less it is likely to be used. Arbitration is not an end in itself, but a means to an end—the pacific settlement of international disputes. The normal method of adjusting disputes is by negotiation, through the usual diplomatic channels. It is only when negotiation fails that arbitration is resorted to as a secondary method to bring about peaceful solution of a question that might otherwise result in war. Arbitration, just because it offers an additional and fair method of settling a dispute, is a logical resort, after negotiations have failed; and the very existence of the additional method encourages negotiators to reach equitable solutions themselves. There is a growing tendency even among nations to settle difficulties out of court, if at all possible.

This condition has been especially manifested in 1913, when probably more difficult questions between nations were settled peaceably by the disputants themselves than had been previously attempted in a similar period. These twelve months were ones of political turmoil.

Correspondingly more emphasis has been laid upon pacific settlement, with the reduction of emphasis on arbitration itself. The methods of pacific settlement are: Negotiation, good offices, mediation, friendly composition, inquiry by commission and arbitration, which latter will more and more be synonymous with, or succeeded by, judicial settlement. Negotiation is, of course, constantly taking place and is so generally considered a normal method that no review of its accomplishments is necessary, for it takes care of all international differences not referred to the other methods and not resulting in war. Good offices and mediation have been employed by the United States in Mexico and by the great powers of Europe in the Balkan affairs.

Organizations like the World Peace Foundation regard the development of the commission of inquiry, which Secretary Bryan has used in his peace plan, as a great advance toward assured peaceful relations between nations. The commission of inquiry is designed to determine facts about which the nations are in doubt. While arbitration involves an award deciding one disputant to be in the wrong, the commission of inquiry confines itself to finding facts, leaving the settlement of the affair to the disputants themselves. In the Wilson-Bryan peace plan this method, based on the facts that a dispute is a misunderstanding and that where all facts are known there can be no misunderstanding, has been applied to reducing the likelihood of war. The plan simply provides that the contracting parties agree not to declare war before a commission of inquiry has reported on the facts in dispute. It is obvious that the plan has much to commend it; for few wars will be declared after time has been allowed for passions to cool and for the issues to be estimated at their true value.

President Wilson's recommendations are to the effect that: "The parties agree that all questions of whatever character and nature, in dispute between them, shall, when diplomatic efforts fail, be submitted for investigation and report to an international commission (the composition to be agreed upon); and the contracting parties agree not to declare war or begin hostilities until such investigation is made and report submitted.

"The investigation shall be conducted as a matter of course upon the initiative of the commission, without the formality of a request from either party; the report shall be submitted within a time to be agreed upon from the date of the submission of the dispute, but pendently on the subject matter in dispute after the parties shall reserve the right to act inde- the report is submitted."

In a supplementary memorandum filed by the Secretary of State he said:

"In the peace plan proposed by the President to all the nations, the composition of the international commission is left to agreement between the parties, and I am authorized to suggest for the consideration of those who are willing to enter into this agreement:

"1. That the International Commission be of five members, to be composed as follows:

One member from each of the contracting countries, to be chosen by the government; one member to be chosen by each of the contracting countries from some other country, and the fifth member of the commission to be agreed upon by the two governments, the commission to be appointed as soon as convenient after the making of the treaty, vacancies to be filled according to the original appointment.

"2. The time also is to be agreed upon, and it is suggested that that time be one year. If a year is considered too long or too short, this government will consider either a greater or a less period.

"3. This government is prepared to consider the question of maintaining the status quo as to military and naval preparation during the period of investigation, if the contracting nation desires to include this, and this government suggests tentatively that the parties agree that there shall be no change in the military and naval programme during this period of investigation unless danger to one of the contracting parties from a third power compels a change in said programme, in which case the party feeling itself menaced by a third power, shall confidently communicate the matter in writing to the other contracting party and it shall thereupon be released from the obligation not to change its military or naval programme, and this release will at the same time operate as a release of the other contracting party. This protects each party from the other in ordinary cases, and yet provides freedom of action in emergencies.

"All of these suggestions, however, are presented for consideration, and not with the intention of imposing any fixed conditions. The principle of investigation being accepted, the details are matters for conference and consideration."

The principles of this peace proposal have been accepted by 21 out of the 39 countries addressed, and actual peace treaties thereon were signed up to December 31, 1913, by seven countries: Salvador, Guatemala, Dominican Republic, Nicaragua, Honduras, Panama, and the Netherlands. At that date active negotiations were under way with Portugal and Denmark.

The nations, in order of their acceptance of the principles involved, are: Italy, Great Britain, France, Brazil, Sweden, Norway, Russia, Peru, Austria, Netherlands, Bolivia, Germany, Argentina, China, Dominican Republic, Guatemala, Haiti, Spain, Portugal, Belgium, and Denmark.

The Hague Court arbitrators selected to settle the controversy between France and Italy, because of the seizure by Italian warships during the war in Tripoli of two French steamers plying between Marseilles and Tunis, announced their decision early in May, the case having been argued on March 31. The members of the court chosen for arbitration were Prof. Louis Renault of France, Prof. Guido Fusinato of the Italian State Council, Prof. de Taube of the Russian State Council, Dr. Kriege, legal adviser of the German minister of foreign affairs, and Hjalmar Hammarskold, governor of the Province of Upsala in Sweden. The two steamers were seized because they had on board an aeroplane and members of the Turkish Red Crescent, whom the Italians thought did not belong to the order, but were surreptitiously taking in the aeroplane to use in the war. The French government complained of the seizure as a violation of the laws of war regarding neutrals. Italy released the ships and asked for the reference of the question to the Hague Court, to which the French government agreed. The arbitrators have sustained the French contention and agreed that Italy should pay $400 as damages. The case of no great importance in itself, bears witness to the steady power of the Hague Court in keeping before the world that there is a civilized and rational way of disposing of controversies, now officially recognized by the family of nations, which makes war henceforth without excuse, a fact which is emphasized when one recalls that the case of one of the two vessels (the *Manouba*) was almost the exact counterpart of the *Trent* affair of our Civil War. The one became world-famous as a crisis between friendly nations; but the other, with arbitration to solve it, is practically unknown and involved not even a momentary feeling of ill will between friendly nations. The seizures ceased to be matters of public comment before the steamers in question completed their trips to Tunis and back.

On January 25, 1912, the *Tavignano*, another French vessel, was held up by the Italians under uncertain circumstances of fact, and two Tunisian native vessels were fired upon. Diplomatic discussion immediately brought out misunderstanding as to fact, and under the terms of the Hague Convention a commission of inquiry was appointed. It rendered its report on July 23, 1912. It indicated clearly that questions of law must be settled before damages could be fixed. So it was agreed by a *compromis* of November 8, 1912, to refer these two affairs to the Hague Court for decision on the law and damages. They were scheduled to be considered as the third and fourth parts of the Franco-Italian case. But after the *Carthage* and *Manouba* cases were decided the two governments talked over these other cases and settled them out of court. (See INTERNATIONAL YEAR BOOK for 1912.)

President Nicholas Murray Butler, of Columbia University, and an active member of the Carnegie Peace Foundation, as late as November 27, pointed out there is no visible evidence that any government or any responsible statesman is taking any interest in the preparations for the Third Hague Conference which should be called to meet in 1915. The express recommendations of the Second Hague Conference as to how this work of preparation should be undertaken have not, so far as is known, been followed. "It therefore becomes," he declared at that time, "a very practical and a very pressing question whether those who believe in improved international relations and are working to bring them about propose to let the Third Hague Conference go by default or meet in pursuance of a belated invitation without a carefully prepared and well thought out programme."

The World Peace Foundation said at the same time if the Third Hague Conference is to meet in 1915, the international committee to prepare its programme should already be in existence. National committees in no way take the place of such a committee. For the creation of this international committee the initiative, if not already taken without the knowledge of the public, as is entirely unlikely, should be taken immediately by some government. Our own government, the Foundation pointed out, is in a peculiarly propitious position to take the initiative; and the International Peace Congress at The Hague in August properly urged the American peace organization to move in the matter. Some of them have already done so; but there has been no definite and concerted demand. This is the more incumbent as there have been intimations of a purpose or desire in certain influential European quarters to force a delay of the assembling of the conference.

The Peace Palace at the Hague, providing a permanent place for the Hague tribunal, was dedicated in August with appropriate ceremonies.

The World Peace Foundation has published four volumes relating to the Hague Conferences: *Texts of the Peace Conferences at The Hague* and *American Addresses at the Second Hague Conferences*, both edited by Dr. James Brown Scott; *The First Hague Conference*, by Andrew D. White, and *The Two Hague Conferences* by Prof. William I. Hull; and a considerable list of phamphlets.

Beginning in 1908 the United States arbitration treaties with twenty-five nations running for a period of five years each were negotiated. Nine of these treaties expired by limitation in 1913. The treaty with France was renewed and ratified by the Senate in February. The treaties with Great Britain, Italy, and Spain were renewed and submitted to the Senate, which considered them in executive session on June 5. Objection to ratifying the British treaty was raised by Senator Chamberlain, of Oregon. It is reported that the other two treaties were approved and the action later rescinded to avoid an appearance of partiality. Japan has expressed a willingness to renew her treaty, but Senator Works, of California, is opposed unless arbitration of the Japanese question in his State is excluded. These objections seem likely to prevent early attempts to ratify any of the treaties. Early in 1914 the committee on foreign affairs reported the treaties favorably.

Relief from treaty obligation to arbitrate the Panama tolls issue has endangered several arbitration treaties and the professed leadership of America in the arbitration movement is also believed to be thereby endangered. In the view of many, the United States shirks arbitration when danger of loss thereby is feared. Great Britain objected to certain clauses in the Panama Canal act of August 24, 1912, especially to the exemption of American coastwise traffic from payment of tolls, on the ground that the Hay-Pauncefote Treaty of 1901 provided that "The canal shall be free and open to the vessels of commerce and of war of all nations . . . on terms of entire equality," and suggested arbitration under the treaty of 1908, which stipulated that "questions relating to the interpretation of treaties should be arbitrated." This left the United States three principal choices: 1. To repeal the exemption clause; 2. To arbitrate the issue, under the treaty of 1908; 3. To decline to either repeal or arbitrate. None of these things has been done.

The American-British Claims Commission has held two meetings, one in Washington in May and one in Ottawa in June. Four cases have been argued and decided, namely, the Hardman, King Robert, Yukon lumber, and Lindesfarne, all British claims against the United States. The first three of these were decided in favor of the United States; in the last, Great Britain recovered a small judgment. Two other cases, the Canadienne, and the Union Bridge Company case, have been argued, but not decided. A reargument has been ordered in the Union Bridge Company case. One of the most interesting cases to come before the commission is the Studer case, which it is expected will be argued in May next. This is a claim growing out of the destruction of the concessionary rights of an American citizen in the Malay Peninsula.

The claims of the British, French, and German subjects against the Republic of Portugal, growing out of the recent revolution in the latter country, have been submitted to the Hague for settlement. In this connection mention should be made of the shelving of the loan conventions negotiated with Nicaragua and Honduras, by President Taft, and the policy of a new convention by the present administration, extending the Platt amendment over Nicaragua. While these treaties are not arbitration treaties in the technical sense of the word, they were all negotiated with the idea of keeping the peace in Central America.

The Nobel Peace Prize for 1912 was awarded the Hon. Elihu Root, senator of the United States from the State of New York, and that for 1913 to Henry la Fontaine, the Belgian Socialist. As a result of Senator Root's suggestion, while he was serving as Secretary of State, and as a result of his direction and inspiration, the Second Hague Conference adopted the Porter proposition for the limitation of force in the collection of contract debts—the furthest step that the world has yet taken toward the goal of obligatory arbitration—and through his leadership the American delegation was able to create all but the detail of the method of selecting the judges of the judicial arbitration court, to supplement the permanent court at the Hague, created at the first conference. After that conference closed he negotiated the twenty-six arbitration treaties above referred to, the greatest number ever signed at one time by one nation. His handling of the delicate Japanese school question was regarded as a triumph of statesmanship, as was his support of Secretary Hay's open door policy in China. Mr. Root induced the European nations to permit all the American republics to come to the Second Hague Conference, thus making it the first assembly in the annals of history where the whole world came together to discuss affairs common to all. His diplomatic trip in the winter of 1906 to Latin America was a peace mission, and his speeches did much to disarm the prevalent jealousy and suspicion against the United States. One of his greatest achievements is perhaps the little model Central American Court of Justice, which has already twice enjoined the republics from going to war, and has preserved the peace between them to this day.

After Mr. Taft succeeded Mr. Roosevelt, Mr. Root retired from the cabinet and entered the Senate, where he devoted himself to the work of the committee of foreign relations.

In 1910 he served as senior counsel of the United States in the Newfoundland fisheries dispute with England, argued before the Hague Tribunal. In the same year Mr. Carnegie selected him to be president of the Carnegie endowment for international peace. On the very day that the announcement was made that he had won the Nobel prize, it was published in The Hague that he had been selected as one of the members of the court of arbitration to which are to be referred the claims of British, French, and Spanish subjects in regard to property seized by the Portuguese government after the proclamation of a republic in that country.

The international conference for the consideration of the commemoration of the first century of peace between the United States and the British Empire submitted a report to the national body from which its delegations derive their authority. The report reads as follows:

Platform. The central idea for consideration is not only a programme for the celebration of one hundred years of peace, but a statement of purposes for the perpetuation of peace.

International monuments to be erected in Great Britain, the United States, and their dominions and possessions beyond the seas, the foundation stones to be laid on the selected day, if possible, by His Majesty the King in Great Britain and by the President in the United States, and by their representatives in their respective possessions. In view of the good relations prevailing between the American and British peoples and other nations, all foreign governments should be cordially invited to honor the more important of these occasions by an official representation. At the time fixed for laying the foundation stones there should be a stoppage of five minutes from work throughout all the countries interested, to be occupied, where a public gathering or other assemblage is practicable, by the reading of the agreed inscription on international monuments. At the time fixed, as stated, the work in all schools to be stopped, appropriate addresses to be delivered, and the two national anthems to be sung, followed by a half holiday. A subcommittee should be appointed to ascertain what dates, arrangements, etc., are in the minds of the several countries, with power to determine them and to make them generally known.

The educational features of the celebration comprise an organized endeavor in British-American countries to promote, by well-considered methods, the growth of those feelings of mutual respect and good will which already happily exist. This might include: The endowment of chairs of British-American history with special reference to the peaceful progress and relations of the two peoples and based upon the principle of an interchange of professors, and the endowment of traveling scholarships to enable journalists and writers to visit the various English-speaking countries. The awarding of prizes for essays and some other topics in all schools, colleges, and universities. The coöperation of the respective committees in the preparation of a history of the century of peace, from which text-books and schoolbooks in the several countries may be prepared or revised. An annual peace day celebration in the schools.

Among other features recommended are universal commemorative tablets; universal religious services of thanksgiving; permanent monuments; cordial approval of the early appointment of a preparatory committee as recommended by the last Hague Conference; celebration in Ghent, after consulting with the municipality; an international commemorative medal.

The conference recommends that an international committee be appointed through action on the part of the national committee, with power to deal with such matters as may be referred to them of the several countries concerned.

The seventeenth conference of the Interparliamentary Union which took place at Geneva just before the Peace Congress, in August, was much smaller than previous conferences. The leaders in the union's work were nearly all there. The papers were of high order, and the members of parliaments present seemed more loyal and devoted than ever before, and determined to carry on their important work in connection with the parliaments of the nations with increased confidence in the ultimate triumph of the special measures which the Union has given itself to promoting.

The Twentieth International Peace Congress was held at The Hague, August 18-23. The organizing head of the congress was, as usual, the International Peace Bureau at Berne (President Albert Gobat; Secretary Henri Golay). Of course there was the usual honorary committee made up in this instance of many of the leading lights of Holland, including T. Heemskerk, minister of the interior; President Schimmelpennick, of the Upper Chamber; A. P. C. van Karnebeek, minister of state, and twenty-four others. The national preparatory committee on organization included about two hundred and fifty others. The members of the general executive committee of twelve members were, however, most directly responsible for the local arrangements. The president of this committee was M. de Pinto. The president of the committee on reception was Jhr. H. W. van Asch van Wijk; the secretary of the committee, H. van der Mandere. There was also a most efficient committee of ladies under the direction of Miss J. Backer.

Differing somewhat from previous congresses, the organization of the programme this year pursued two general lines—the submission of formal papers and the reports of the six committees selected by the bureau. There was a committee on actualities, Professor Th. Ruyssen, chairman; on international law, J. G. Alexander, England, chairman; on propaganda, Baron de Neufville, Germany, chairman; on disarmaments, G. H. Perris, England, chairman; on sociology, Dr. E. Giretti, Italy, chairman; and on education, Dr. Emile Arnaud, France, chairman. The formal papers which reached the congress were: "A Report on the Events of the Year Connected with Peace and War," by Mr. Gobat; "The Peace Movement and the Press," by Mr. Fried; "Commercial Rivalry and International Relations," by Norman Angell; "The Enforcement of Sanctions in International Law by Means of an International Police System," by Professor van Vollenhoven; "Economic Sanctions in Case of Violation of International Law," by Mr. A. de Madav; "International Organization of Communications to the Press by Peace Societies," by Mr. Le Fover; "Limitation of Armaments and Their Gradual Proportional Reduction," by Professor Quidde. These papers and the resolutions submitted by the six committees constituted the basis of the programme.

The Fifth Central American Peace Congress (January), the Twentieth Universal Peace Congress at The Hague (August), *supra*, the Fourth American Peace Congress at St. Louis (May), *supra*, the Interparliamentary Union Conference at The Hague (September), and the dedication of the Palace of Peace at The Hague (August 28) were all notable occasions. Another important meeting was that of the American Bar Association in Montreal (September), at which Lord Haldane, representing the King of England, delivered a notable address, strongly favoring international amity, to a distinguished American audience.

Some important peace agencies recently formed include the Franco-German interparliamentary organization composed of members of the two parliaments, organized to further a better understanding between their nations; a similar organization of members of the Japanese and the United States Congress; and the American Church Peace League, recently organized to supplement the work of the Associated Councils of British and German churches. The secretary of the latter is Dr. Frederick Lynch, 90 Bible House, New York City.

The Year Book for 1912 of the Carnegie Endowment for International Peace contains 165 pages. Beginning with Mr. Carnegie's interesting letter of gift, under date of December 14, 1910, it ends with certain resolutions of the board of trustees, the last of which is a tribute to Albert K. Smiley, under date of December 2, 1912. The book contains the proposed charter, the by-laws, the report of the executive committee to the board of trustees, the report of the secretary to the board of trustees, and extensive reports from the three great divisions of the association, namely, the Division of Intercourse and Education, the Division of Economics and History, and the Division of International Law.

In April the foundation published a report on the teaching of international law in the educational institutions of the United States.

Edwin Ginn, who endowed the World Peace Foundation with a million dollars, died in January, 1914. This organization, which has established permanent headquarters at 40 Mt. Vernon Street, Boston, is managed by a board of trustees consisting of A. Lawrence Lowell, William H. P. Faunce, Joseph Swain, Samuel T. Dutton, Sarah Louise Arnold, Edward Cymmings, Samuel W. McCall, George A. Plimpton, George W. Anderson, Samuel B. Capen, Albert E. Pillsbury; and the work carried on by the following directors: Edwin D. Mead, chief director; David Starr Jordan, James A. Macdonald, Hamilton Holt, Charles R. Brown, William I. Hull, George W. Nasmyth, Charles H. Levermore, Albert G. Bryant.

Its pamphlet publications during 1913 were: "The Wounded," by Noel Buxton, M.P.; "Women and War," by M. A. Stobart; "Panama Canal Tolls," by Hon. Elihu Root; "Instructions to American Hague Delegates," 1899 and 1907; Part I, "Washington, Jefferson and Franklin on War," by Edwin D. Mead; Part II, "The International Library;" "The Drain of Armaments," by Arthur W. Allen; Part I, "Organizing the Peace Work," by Edwin Ginn; Part II, "Internationalism Among Universities," by Louis P. Lochner; "The Forces Warring Against War," by Havelock Ellis; "To the Picked Half Million," by William T. Stead; "Our Duty Concerning the Panama Canal Tolls," by Thomas Raeburn White and Charlemagne Tower; "The Commission of Inquiry: The Wilson-Bryan Peace Plan," by Denys P. Myers; "Suggestions for Lectures on International Relations," by Charles R. Levermore; "Work in 1913."

The following table shows the departments already organized by the American Peace Society; the headquarters of each department, the States most canvassed by each, the constituency included, and department directors are given:

Departments	Headquarters	States	Constituency	Directors
1. Central West	Chicago	Illinois Iowa Indiana Ohio Michigan Wisconsin	20,500,000	C. E. Beals
2. New England	Boston	New England States	6,500,000	J. L. Tryon
3. New York	New York City	New York New Jersey	11,000,000	S. T. Dutton
4. Pacific Coast	Los Angeles	Washington Oregon California	4,500,000	Robt. C. Root
5. So. Atlantic States	Atlanta, Ga.	Virginia Florida N. Carolina S. Carolina Georgia	9,280,000	J. J. Hall

The following are the constituent branches of the society, together with the location and number of paid-up members of each:

Society	No. of Members
1. Buffalo Peace Society, Buffalo, N. Y.	115
2. California Peace Society (Northern), Berkeley, Cal.	75
3. California Peace Society (Southern), Los Angeles, Cal.	310
4. Chicago Peace Society, Chicago, Ill.	462
5. Cincinnati, The Arbitration and Peace Society of, Cincinnati, O.	100
6. Cleveland Peace Society, Cleveland, O.	44
7. Connecticut Peace Society, Hartford, Conn.	245
8. Georgia Peace Society, Atlanta, Ga.	38
9. German-American Peace Society, New York City	91
10. Italian-American Peace Society, New	

	York City	42
11.	Maine Peace Society, Portland, Me.	91
12.	Maryland Peace Society, Baltimore, Md.	218
13.	Massachusetts Peace Society, Boston, Mass.	894
14.	Missouri Peace Society, St. Louis, Mo.	107
15.	Nebraska Peace Society, Lincoln, Neb.	216
16.	New Hampshire Peace Society, Concord, N. H.	116
17.	New York Peace Society, New York City	800
18.	North Carolina Peace Society, Raleigh, N. C.	45
19.	Oregon Peace Society, Portland, Ore.	
20.	Pennsylvania Arbitration and Peace Society, Philadelphia, Pa.	212
21.	Rhode Island Peace Society, Providence, R. I.	
32.	Utah Peace Society, Salt Lake City, Utah	22
23.	Vermont Peace Society, Montpelier, Vt.	
24.	Washington Peace Society, Seattle, Wash.	
25.	Washington (D. C.) Peace Society	103
26.	Wisconsin Peace Society, Madison, Wis.	113
27.	Youngstown Peace Society, Youngstown, O.	73
	Branch society membership (reported January 1, 1913)	4532
	Other paid-up members	1135
	Total paid-up members	5667

The Fourth American Peace Congress, assembled at St. Louis, May 1 to 4, 1913, recorded its sincere satisfaction at the substantial progress which the movement for world peace has made since the meeting of the Third Congress at Baltimore. It particularly expressed its high appreciation of the unique services to the cause of international arbitration rendered by ex-President Taft in negotiating the treaties with Great Britain and France. Not less significant, the congress recognized the noteworthy enlargement and deepening of public sentiment on the part of nearly all classes throughout the country in favor of pacific settlement of all international controversies. The congress urged upon the President the initiation, at the earliest practicable date, of negotiations for an international agreement for not only the arrest of the current naval and military rivalry, but also of a simultaneous reduction of armaments, that the peoples may be relieved from the heavy and exhausting burdens of taxation under which they are now suffering, and approved the plan which President Wilson and Secretary Bryan had just announced for securing treaties of unrestricted arbitration with not only Great Britain and France, but also with Germany and the other powers, and for the investigation by a commission of inquiry of the facts of any dispute which either of the parties may not consider proper for arbitration before any steps are taken toward hostilities.

The Nineteenth Annual Lake Mohonk Conference on International Arbitration, May 14-16, in view of the probable meeting of a Third Hague Conference in 1915, recommended that the Secretary of State urge the nations which participated in the Second Hague Conference to form immediately the international preparatory committee recommended by it to prepare and submit to the nations a programme for the Third Hague Conference, and to devise a system of organization and procedure for the conference itself, and that the Secretary of State consider the expediency of submitting to the international preparatory committee at an early date a list of the topics which the United States especially desires to have considered at the Third Hague Conference, with an outline of the proposals of the United States on each topic; and further, that the Third Hague Conference reconsider the question of a general treaty of arbitration which shall, in accordance with the principle of obligatory arbitration unanimously adopted by the second conference, submit to arbitration without restriction disputes of a legal nature, or relating to the interpretation and application of international agreements, and such other controversies as may be considered susceptible of arbitral or judicial determination. It is also urged that the court of arbitral justice, approved in principle by the second conference, be established for the adjudication of disputes of a justifiable nature, without altering the status of the permanent court of arbitration and that the exemption from capture of innocent private property of the enemy on the seas be considered anew by the Third Hague Conference, and further that in general, greater stress be laid by the Third Hague Conference upon the means and measures by which peace may be maintained, or restored when broken, than upon the rules and regulations of warfare.

May 18 was again observed as Peace Day in the schools and the third Sunday in December as Peace Sunday in the churches and Sunday schools. The interest in the observance of these days, especially that of May 18, has increased, and it seems fairly certain that the observance of this anniversary of the opening of the First Hague Conference will be much more general in the schools than before.

The last annual convention of the American School Peace League surpassed any previously held, both in attendance and in the interest aroused. It was held from July 5 to 12, in Salt Lake City, as usual, in connection with the annual convention of the National Education Association. Mrs. Fannie Fern Andrews, Boston, is secretary.

The fourth annual meeting of the American Society for the Judicial Settlement of International Disputes was held in Washington, December 4-6. The subjects discussed were: "Some Preliminary Questions to Be Considered in Connection with the Establishment of an International Tribunal"; "The Nature and Scope of the Different Methods of Peaceful Settlement"; "The Sanction of International Judgments." During the year the following pamphlets were published: "Legal Problems Capable of Settlement by Arbitration," by Charles Cheney Hyde, February, 1913; "Precedent and Codification in International Law," by Paul S. Reinsch, May, 1913; "International Contractual Claims and Their Settlement," by Edwin M. Borchard, August, 1913; "The Supreme Court of the World," by Henry B. F. Macfarland, November, 1913.

The London Chamber of Commerce sent a circular letter in behalf of international arbitration to the leading commercial bodies of the world urging continued earnest action in accordance with the impressive declaration of the International Congress of Chambers of Commerce at Boston in 1912, and asking that the matter be brought before the council to the end that it may be prepared to use its influence in the direction indicated in the resolution adopted by the International Congress.

ARBITRATION AND CONCILIATION, INDUSTRIAL. Recent years have been marked by an unusual amount of unrest among the laboring classes and consequently by numerous strikes and lockouts. There has resulted considerable attention to methods of arbitration and conciliation with a view to preventing the interruption of industry and the attendant losses to business, workers, and the public. As industrial life has become more diversified the increasing division of labor has brought all parts of the industrial system intimately together. The result is that, just as the people of any community are dependent for many of their normal necessaries and conveniences upon their local transportation, telephones, lighting, and other public utility corporations, so also have they become more and more dependent upon the more extensive public service corporations such as railways and an increasing variety of industries. Moreover the public is learning that a strike or lockout in any line of manufacturing imposes a greater or less financial burden upon consumers at large, through increased prices, cessation of supply and increased cost of poor-relief. The conviction therefore has grown that some governmental machinery must be established whereby industries vitally important to the public may be continued in operation during the settlement of disputes. In the United States there has not been sufficient public support to warrant the institution of compulsory arbitration, consequently there has been a very considerable development of intervention by State or Federal authorities and reliance upon the enforcement of fair conditions by an informed public.

Erdman Act Amended. In their dispute with the firemen the railroads had carried their refusal to arbitrate under the Erdman Act to the very verge of a colossal strike. This act provided that in case of disputes involving common carriers the chairman of the Interstate Commerce Commission and the Commission of Labor should endeavor to settle the differences by mediation; and that if they failed the carrier and the employes should each choose a representative and these two a third to constitute a board of arbitration whose award should be binding. The roads preferred a larger arbitration board because the responsibility imposed by the act upon the third member, who represented the public, was too great to impose on one man. They objected that the act operated only to compromise disputes and not to settle a controversy in a judicial manner. Thus expediency and coercion replaced justice. They also put forth the plea that under the act the interests of the public were not safeguarded since the unions have no responsibility except to their own members. Press comment also brought forth the objection that arbitrators should not be chosen because of their obvious bias; and that the awards under the act merely brought temporary peace, usually for one year.

When, therefore, the country was threatened by a strike of railway conductors and trainmen, as noted below, the Newlands bill was rushed through Congress in July creating a commissioner of mediation and conciliation, who, with two other government officials, shall constitute a board of mediation and conciliation. An assistant commissioner was authorized. The new law provided for arbitration, when desired, by six instead of three arbitrators, two representing the roads, two the employes, and two chosen by these four. Both the roads and the railway unions coöperated in formulating and pushing this revision through Congress. President Wilson appointed to the board the following: William L. Chambers, commissioner; Assistant Secretary of Labor Louis F. Post; and Judge Martin A. Knapp of the Commerce Court. Mr. G. W. W. Hanger was selected as assistant to the commissioner.

Attitude of Organized Labor. During the year there were numerous objections from labor leaders to any compulsion in the matter of arbitration or conciliation. American trade unionists, as represented by the American Federation of Labor, have uniformly stood out vigorously against the New Zealand scheme of compulsory judicial settlement of trade differences. Since the enactment of the Canadian trades disputes act, and especially with the growth of sentiment in the United States favoring some form of compulsion at least in public utilities, they have raised objections even to the mild form of compulsion embodied in that act. Under that law neither strike nor lockout may be instituted before the whole situation has been subjected to review by an impartial board and the findings published. The trade unionists object that the delay thus involved makes quick and effective strikes impossible, because in the interim strike breakers can be secured. Moreover, they argue, experience shows the efficiency of a well-organized system of collective bargaining with trade agreements that include provision for conciliatory measures. They do not agree with the fundamental postulate of the Canadian law that public opinion is disinterested and certain to demand and enforce justice. Finally they object that the law interferes with personal freedom by denying right to withhold labor power, that is, to strike, at one's own pleasure.

Cloak Industry. The protocol by which the great strike of 1910 in the cloak, suit, and skirt industry of New York was settled proved to be an effective form of arbitration. It provided for a grievance committee of five unionists and five employers to which disputes could be taken by employer or employes and from which appeals could be taken to a permanent board of arbitration. This latter board was composed of three distinguished and public-spirited men, Louis S. Brandeis, a Boston attorney, Hamilton Holt, editor of *The Independent*, and Morris Hillquit, a leading Socialist. The agreement provided for the preferential union shop, that is, one in which preference is given to union members but from which non-unionists are not excluded. But the notable feature of this protocol was the creation of a board of joint sanitary control of seven members, two representing the union, two the employers, and three the public. The three latter have been: William J. Schieffelin, chairman of the Citizens' Union; Lillian S. Wald, of the Nurses' Settlement, and Henry Moskowitz of the Madison House. This board has wrought a revolution in the lighting, ventilation, cleanliness, and safety of the 1888 shops under its survey. It has secured drop ladders for fire escapes, doors opening outward, dressing rooms, scientific lighting and numerous other standard conditions. It has issued certificates to those shops meeting its sanitary standards, and by February, 1913, practically every shop of the Manufacturers' Association had such a certificate. The board also instituted a regular programme of educating the employes regarding factory laws and conditions of health.

The remarkable results of this arrangement suggested its extension to other industries; and it was made the basis of settlement in a strike in three other branches of the garment industry. See *Needle Trades* under STRIKES AND LOCKOUTS. It requires a strong union and a strong employers' association, both directed by men of conscience and public spirit. It recognizes the rightful interest of the public in the creation of goods which the public must buy; and by thus opening the way for the reforms demanded by the National Consumers' League it makes possible the standardization not only of all the conditions of labor and production but of the products themselves.

RAILWAY FIREMEN. In May, 1912, the 31,000 firemen of the fifty-odd Eastern railroads presented to their managers demands for increased pay, new rules as to hours and overtime, and for extra firemen on large engines. They expressed a willingness to arbitrate under the Erdman Act, but the roads preferred a board of seven such as had settled the engineers' case in 1912. Tension increased until by February 18, 1913, a strike appeared almost inevitable, 96 per cent. of the men having voted to quit work. This would have been a national calamity, since the roads involved had 67,000 miles of main track, served nearly 40,000,000 people, and handled nearly one-half of the total traffic of the country. On that day it was agreed to submit differences to three arbitrators under the Erdman Act. This concession by the roads was secured by Judge Knapp of the Commerce Court and Acting Commissioner of Labor G. W. W. Hanger. The arbitrators chosen were Vice-President W. W. Atterbury of the Pennsylvania Railroad, Vice-President Albert Phillips of the Brotherhood of Locomotive Firemen and Enginemen, with Judge W. L. Chambers of Washington as chairman. They made the following award to take effect May 4, 1913: An increase of wages less than demanded; a refusal of the request for two firemen on certain engines, but provision for the arbitration of specific requests for two firemen; helpers in electric service to have same conditions as those on steam railways; firemen in pusher, helper, mine-run, belt-line, wreck, and transfer services to have same rates as those in through-freight service; the working day to be ten hours or a run of 100 miles or less. The firemen had demanded an increase of wages estimated by them to be 15 per cent. and by managers to be 35 per cent.; the increase granted was variously estimated to equal 6 to 12 per cent. and to entail on the roads an annual increase of from $2,500,000 to $4,500,000. The firemen abandoned their demand for over-time pay at time and one-half before the case was submitted to arbitration.

RAILWAY CONDUCTORS AND TRAINMEN. Perhaps the most notable award of the year was that of the board of arbitration organized under the Newlands act to settle the demand of the conductors and trainmen of the fifty-odd railroads east of Chicago and north of the Ohio and Potomac rivers. The men, including 19,903 conductors, and 53,363 trainmen, demanded an increase of 21 per cent. in wages and certain new rules regarding conditions of employment. The board of arbitration consisted of Seth Low, ex-mayor of New York, and Dr. John H. Tinley, New York State commissioner of education, representing the public, two railroad vice-presidents, and two railway unionists. They held hearings from September 11 to October 10; and made public their award on November 10. Decision was rendered by a vote of four to two. They granted increases in wages of about 7 per cent., amounting in the aggregate to about $6,000,000 per year. The board held that the basis of increase should be the rise in the cost of living since 1910, when an adjustment of wages had been made. The principle of guaranteeing a certain minimum daily and monthly pay was adopted. Thus conductors with runs of less than 155 miles were guaranteed at least $4.50 per day; assistant conductors, $3.75; baggage-men, $2.75; flagmen, $2.60; and brakemen, $2.55. The monthly guarantees were thirty times as great. The board refused to grant the demand for overtime pay at time and a half, and the demand for time and a half and double time pay for work on trains hauled by two or more engines. The board held that it could not make the higher rates of pay in the West the basis of its award, but it suggested the advisability of an inquiry by a government commission as to reasons why, if any, rates of pay should be higher in the West and Southeast than in the East. The board held the railroads to constitute a national public utility, like the Post Office, and expressed the opinion that ultimately the railroads would be forced to conform to the government practice of no differential. The award held that all standardization should be up and never down, that is, that wherever pay or conditions were already better than those of the award they should be unaffected by the decision. The board considered this the final stage in a cycle of wage adjustment and hinted strongly that higher railroad rates would be necessary to meet these new demands and the urgent needs for new equipment and other improvements. The decision had an adverse effect upon many railway stocks. This was due in part to the fact that, in spite of the investment of new capital, railway earnings were actually less than in 1912; and in part to the acceptance of the contention of the arbitrators representing the railroads that the unions would soon come forward with new demands, since in the light of recent decisions, they had no chance of losing any of their gains and had some chance of bettering their conditions. Railroad executives voiced the opinion that the Interstate Commerce Commission, having power to fix railroad rates, should also have power to adjust wages so as to bring the two into conformity. In any case the railway managers found some slight comfort in the award because it furnished, in their minds, a final convincing reason why their demand for a 5 per cent. increase in rates should be granted.

LITTLE FALLS. The strike begun in the knitting mills of Little Falls early in October, 1912, was brought to a close early in the year through the intervention of the New York Bureau of Arbitration. This strike developed features comparable to the great Lawrence strike at Lawrence, Mass., in 1912, partly as a result of Socialist and I. W. W. leadership. Like that memorable strike it was due to a threatened reduction of ten per cent. in wages made necessary by the law limiting the hours of women to 54 per week. Investigation by the Bureau of Labor Statistics showed that in September, 1912, about 49 per cent. of the male employes had received $9 per week or less; that about the same proportion of women had received $7.50 or less; that 10 per cent. of the men and 30 per cent. of the women had received $6 or less a week. The bureau's report characterized the housing and living conditions as poor and declared that "the one outstanding and unavoidable conclusion of this report is that there is need of a thorough general investigation of wages and cost of living among the textile workers of the Mohawk Valley."

GREAT BRITAIN. The development of means for effecting the settlement of trade disputes by conciliation and arbitration has gone on rapidly in Great Britain in recent years. In 1896 the board of trade was authorized to act as a permanent agency of mediation. In 1908 the permanent Court of Arbitration was created. Then in 1911, as a result of unusually extensive and stubborn labor contests there was created the Industrial Council. This consisted in 1913 of thirteen representatives of employers and an equal number of representatives of workmen, under the chairmanship of Sir George Askwith. It holds regular meetings in February, June, and November of each year.

At the beginning of the year there were 297 voluntary conciliation boards and standing joint committees in existence, of which 282 dealt with special trades and 15 dealt with districts or entire industries. More than a hundred of the trade agreements under which these boards and committees existed provided that in case of failure the dispute should be submitted to an umpire, arbitrator, or conciliator to be appointed by the board of trade. Similarly they frequently provided that questions of interpretation shall be referred to the board of trade.

At the request of the government the Industrial Council submitted a report in July on the question of the best method of securing the fulfillment of trade agreements and how far such agreements should be enforced throughout a trade or district. The council held 38 meetings before drawing up its conclusions. Its report declared emphatically that the maintenance of the principle of collective bargaining should not be called in question. Inquiry showed that collective agreements are kept as a rule, the exception being in unorganized or only partially organized trades. The report suggested that provision be made in all trade agreements for submission of disputes to a third party in case of failure of the established machinery; and that pending such decision no strike or lockout be declared. As to the question of enforcement, the council did not favor either money penalties or the prohibition by law of financial or other assistance to persons impeached; but it advised the withholding of such financial assistance and the exertion of moral influence in favor of strict adherence to the contract. It did not view compulsory arbitration with favor. While it thought there is real danger that effective agreements cannot be maintained where there are many employers and workmen in the trade outside of the agreement, yet it favored the development of methods which would extend the operations of the agreement to all parts of the industry. It recommended that every trade agreement provide that a certain number of days' notice must be given by either party of an intended change affecting wages or hours; and that there should be no stoppage of work or alteration of the conditions of employment until investigation has been made by some agreed tribunal and its pronouncement made.

SWITZERLAND. Very early in January Basel passed a law establishing a permanent board of arbitration of three non-partisan members. The law contained a clause making appearance of employers and employes before the board compulsory. It also provided that before a strike or lockout could be declared the matters in dispute must be submitted to review by the arbitration board. This principle was adopted from the Canadian trades disputes investigation act. A board similar to that created in Basel already existed in Zurich and succeeded in settling about three-fourths of all cases brought before it. The Zurich law provided that an award should become effective only when accepted by both sides; and that surety might be exacted from both sides for the faithful execution of the award.

ARCHÆOLOGICAL INSTITUTE OF AMERICA. See ARCHÆOLOGY.

ARCHÆOLOGY. The past season has witnessed a consistent advance in the field of archæology. Most of the old sites have been worked, so that in certain places the excavations have come to a close, while in others there is still much to do. As will be seen the Germans have carried on their explorations at Babylon with their usual thoroughness and Professor Butler has done equally brilliant work at the important site of Sardis. Italy, particularly the Palatine Hill in Rome, has proved to be an exhaustless source for the archæologist; the north, however—France, Germany, and England—has not yielded as much as in past years.

MESOPOTAMIA. Assur, which has occupied the Germans for so many years, is still being explored. Last winter found the workmen engaged in uncovering the graves in the ancient cemetery, from which satisfactory results have been obtained. The tombs proved to be of large size laid up in well dressed stone that might do credit to any modern cemetery. These tombs were not found outside the city walls as is usually the case, but within so that they could be protected from desecration at the hands of an enemy. From this it would seem that they were destined for the royalty or nobility. In form the monuments are rectangular and enclose a chamber about four by eight feet. At one end and raised from the ground is a stone door which still can be turned in its sockets. The sides of the tombs are about ten feet in height and are used to support an arched roof. At El Ahmer, eighty miles south of Bagdad and a short distance from the river

Euphrates, the Abbé Genouillac has laid bare the ruins of the primitive city of Kiss, which is older than Babylon and in fact one of the oldest capitals of Babylonia. In the middle of the great courtyard of the palace this scholar discovered the remains of a very high tower which was called the "Temple of the Foundation of Heaven and Earth." This monument was sacred to the national god Zamama, and the Abbé Genouillac believes that in it he has the source of the Biblical legend of the tower of Babel, which was intended to reach from the earth to the heavens. Statuettes and vases found among the ruins show that the monument cannot be later than the time of Hammurabi.

While the work of the Germans under Koldewy at Babylon has produced nothing spectacular this year, it marks the movement ever nearer to the complete clearing of the site—at which the excavators have been at work for the last fifteen years. What has been brought to light is that part of the city connected with the name of Nebuchadnezzar II. It is now possible to follow the Sacred Way which led from the Ishtar Gate to the temple of Bel. The gate with its beautiful decoration of enamelled brick representing bulls, griffins, and unicorns, as well as the temple itself belong to the sixth century B.C. The older city of Hammurabi has not yet been found—probably owing to the fact that it lies on some other part of the site. On the site of the temple of Bel the Germans have dug a deep pit at the bottom of which they have laid bare great arches which possibly may have supported the famous "hanging gardens" of legend. Beneath the houses in the city have been uncovered a number of graves showing the practice of burying within the city limits. This was probably for some religious purpose.

An interesting discovery has been made in one of the tablets from Nippur and now in the possession of the University of Pennsylvania. The tablet in question, which dates about 2100 B.C., gives an account of the creation and the flood. According to this source a female divinity, Nintu by name, "created the black-headed (that is, human) race" . . . "the fields of the ground produced abundance, the cattle and the four-legged beasts of the field artfully they (the gods) called into existence." After this the narrative goes on to say that the gods became angered at mankind for some wickedness and that "at that time Nintura wailed like a woman in travail. The holy Ishtar wailed on account of the people. Enki (the god of wisdom) held counsel with Anu and Nintura over the proposed destruction of man. At this time Zingidda was king and high priest of Shurappak (which means 'the city of the last day of the flood') and he bowed before the gods and prayed, prostrating himself in humility, and daily and personally he was in contact with them by means of dreams, and he conjured them daily by the name of heaven and earth." Then comes a description of "windstorms which possess great power, the rainstorms in their entirety went with them, and the storms were terrible. After seven days the rainstorm had stormed over the land and carried away the huge boat. Then the sun-god came forth shedding light over heaven and earth. Zingidda opened the (roof) of his ship and the light of the sun-god was let into the interior of the huge boat." When the storm had passed and the waters had subsided Zingidda prayed to the gods and sacrificed an ox and a sheep—apparently in answer to his prayers Enki and Nintu were able to persuade the gods to cease from their wrath. Zingidda himself is translated to an island in the Persian Gulf, where he lives in a kind of paradise.

SYRIA AND PALESTINE. At Ain Shems, a mound on the main road from Jerusalem to the sea, Mackenzie and Newton have, they believe, uncovered the remains of Beth-Shemesh. The walls of the city have been laid bare. A mass of ashes which covered them leads to the supposition that they were destroyed by the Assyrian invasion of 701 B.C. Near by a road which crossed the mound in antiquity, is the shrine of Abu Meizar, which Newton thinks marks the spot where the ark rested on its arrival from Ekron, for a description of the site well fits in with the account in Samuel vi. 14.

At Baalbek, where the Germans have been occupied for the past four years, much has been accomplished in the way of clearing up the site and strengthening the weak places. At Beth Jibrin in Palestine is reported the discovery of a painted rock-cut tomb antedating the Christian era. The monument has places for two adult burials and two smaller ones probably for the interment of children. The central decoration of the tomb consists of a cross surrounded by a wreath and of bunches of grapes. According to Mackenzie, a natural section of the sea-threatened Askalon exhibits ten strata which he classes as pre-Semitic, early Canaanite, Canaanite, a burnt layer, Philistine, Crusader, and late Arabic. In the lowest stratum—the next to the bed rock—have been found fragments of pottery which possibly may date as far back as 2000 B.C. At this time the city seems to have had no wall. From the third, or Canaanite, stratum came a piece of an alabaster vase apparently of Egyptian manufacture and dating from the eighteenth dynasty or later. At Jerusalem excavations have been conducted on the site of the ruins bearing the name of Qusr Jâlud. These ruins are generally believed to mark the site of the tower Psephinus which is described in Josephus and stood at the northwest corner of the city of Jerusalem.

EGYPT. Recent excavations have brought to light traces of a colony of pre-dynastic dwellers on the site of Abydos. Only a few inches below the sand was found a thick stratum mingled with remains of burnt wood, potsherds, animals' bones, and decaying vegetable matter. Among other finds were two hearths, about twenty inches in diameter, which were buried in ashes that contained also arrowheads, borers, scrapers, knives, and saws, as well as a small copper chisel. Besides these finds the excavators ran into a primitive furnace containing twenty-three jars, arranged twelve and eleven and, later on, another crowded with thirty-seven jars. The vessels were held in position by means of fire-bars of clay. Over the furnaces had been originally a roof, and the walls still showed the stoke holes. The furnaces had been heated by means of twigs which were burned between the jars. From the fact that charred remains of grain were found in the jars it is clear that the furnaces were employed for parching the wheat or rye used. On the same site was discovered a fourth dynasty cemetery, in which most of the tombs had never been violated. They consisted usually of small brick buildings two feet in height and as a rule six feet square with a small enclosure on the eastern side. The actual grave was below. Tombs of the twelfth dynasty also came to light. In one of these was found a necklace of amethysts four feet in length. At Gizeh the expedition sent out by the Museum of Fine Arts, Boston, and Harvard University has opened many tombs of importance on the acropolis. Among these is that of Seshem-Nofer, which is one of the original series of mastabas. Its walls are standing almost to the roof and exhibit some fine sculptures in relief. Near to the tomb of Seshem-Nofer was found a smaller mastaba, that of Ka-Nofer. This, together with a relief representing a procession of dancing girls, taken from a nearby tomb, have been acquired by the Museum of Fine Arts in Boston. During the past two winters Quibell's work at Memphis has resulted in the uncovering in a small part of the cemetery of more than four hundred burials. These are uniform in character and for the most part belong to the second and third dynasties. The burial chamber was in the form of a house complete as possible—even to the extent of a bathroom—so that the dead might have all the comforts to which he had been accustomed in life. The tombs had in many cases been previously rifled, but the excavators were still able to recover a number of bowls and dishes and a draught board. Some of the vases bore the names of kings, thus affording a dating for the cemetery. At Meroë Garstang found in the northeastern part of the city a postern gate and what in all probability was a stairway which led up to the ramparts. In this same quarter of the city was also discovered the remains of a Roman bath equipped with a stone bathtub of modern form, and its heating apparatus. To the southwest the royal baths came to light, with their *frigidarium* and *tepidarium* which were furnished with ornamental seats. The swimming pool was about six feet in depth, and decorated with glazed tiles and sculptures between the water spouts. Above were frescoes. Several statues, including one which resembles the "Nile" of the Vatican, were recovered from the building. The original structure dates from the second or third century and was rebuilt a century later. All the sculptures are of local execution. The buildings of the city fall chronologically into three periods—(1) from 700 B.C. to 300 B.C., when Egyptian influence was paramount; (2) from 300 B.C. to 100 A.D., the time of Greek influence and (3) from 100 A. D. to 700 A. D., when Roman influence was felt. The city itself was destroyed somewhere about 700 A.D. The expedition of Harvard University and the Boston Museum of Fine Arts has discovered a pre-dynastic cemetery at Mesheikh. The bodies were placed in the tombs in contracted positions, wrapped in mats or leathern garments and adorned with necklaces of shell, stones, primitive figures of animals, etc.

The work of the Metropolitan Museum this year at Thebes in the concession of Assassif was concerned with the attempt to find the valley temple of Mentuhotip and the causeway which led from it to the great temple next to Halshepsut's at Deit El Bahari. The avenue was found to be ninety meters wide and ornamented on either side by a row of trees. Curiously enough, in order to insure the growth of the trees holes nearly thirty feet in depth were cut in the solid rock and filled with loam in which the stumps of the trees were still found in some places. When the length of the avenue, three-quarters of a mile, is borne in mind, the tremendous energy of the builders is at once appreciated. During the season a Ptolemaic cemetery, and a mortuary temple of the later Rameside kings of the twentieth dynasty, were found.

Asia Minor. At Ephesos the recent work of excavation has been confined to the examination of the "Double Church." The earliest plan seems to belong to a building which may be the one referred to in a number of inscriptions as the "Museum." This season at Didyma has seen the clearing of the mass of ruins which have covered the cella since the temple collapsed in the fifteenth century. Many new blocks of the frieze of griffins have been recovered. At Pergamon the Germans have completed their excavations to the east of the Gymnasium. A large building, dating from the time of the kings, has been discovered, as well as three earlier rock-cut cisterns and a building of the same period containing a circular hall and a hypocaust that had been added later.

The excavations of the Americans at Sardis under the direction of Professor Butler have been of great importance from the point of view of the history of art and of epigraphy. The digging about the temple of Artemis last year left the building more or less as if in a trench. This season's campaign has extended the excavation in all directions so that now the temple stands in the midst of an open space. During the course of this work foundations of houses on different levels were uncovered to the northwest. These belonged to different periods. To the north foundations of poor construction were encountered at high levels of Roman date, and in addition a massive structure built of Roman concrete with thick walls and buttresses. To the east of the temple the workmen met with a precipitous mass of hard-packed earth, which is thought to be a great piece of the acropolis which probably slipped down at the time of the earthquake of the year 17 A.D., and after being redistributed at that time packed down again into its original hard condition. This was found not over 100 feet distant from the front of the temple. Since this obstruction precluded any further digging in that direction this year, attention was devoted to the clearing on the south where traces of walls and a Byzantine cemetery were laid bare. The excavations showed fairly consistently that the lower levels were marked by Lydian pottery, the next by Greek coins, and the upper levels by Roman and Byzantine pottery. It is possible that the temple of Zeus, which Butler hoped to find this year, may be concealed beneath the building of Roman concrete mentioned above as lying to the northeast of the temple. Toward the end of the season a row of foundations and bases of monuments was uncovered extending northward from the north side of the temple in the direction of the great high-road running east and west. It is possible that this belongs to the Sacred Way, and if so it would mark the western side of a wide road running from the middle of the temple on its narrower side. At this point an important bi-lingual inscription in Lydian and Greek, and two lions and an eagle (originally placed upon one pedestal) were discovered. Another important sculptural find from the northern edge of the Roman city consists of a sarcophagus of the Sidamara type. In the tombs of the old acropolis were found several hundred pieces of pottery, among which were many specimens of Lydian pottery of the sixth century B.C. and earlier. Among other objects recovered from these tombs were an ivory head of very archaic character, a small number of masks and figurines of the archaic and later periods, and bronze mirrors in some instances furnished with ivory handles. Particularly interesting were a number of very beautiful gold necklaces, small ornaments, and rings set with carnelian scarabs or furnished with gold seals. The most interesting find of all in the tombs consists of a set of placques and rosette of repoussé work. These came from one burial. There are six larger placques, each decorated with two seated, human-headed lions, with beards and wings, placed face to face and supporting a winged disk of Egyptian character—the whole design being framed in bands decorated with rosettes and crested battlements, Assyrian in style. The nine smaller placques are decorated with a design in the form of a walking sphinx. There are over forty rosettes and these are furnished with shanks at the back like buttons. The workmanship of the whole series is so fine that it shows up better when seen through a magnifying glass.

GREECE. Although the Balkan War doubtless had much effect on archæological investigation in Greece, still much was accomplished by the Greek auuthorities. In Athens the Greeks have resumed the excavation of the Stoa of the Giants, which has not been touched since 1871. The eastern end has been found and the building has been shown to be rectangular in form and surrounded by a wall. In its midst were the three giants with snake bodies on bases belonging to later times. Later evidences have been uncovered which suggest that the eastern part of the building was used for a dyeing establishment. Crete again this year has been the scene of much activity. The famous Idæan cave just above the village of Kamarais was thoroughly examined and much pottery of the Middle Minoan period was brought to light. At Cnossus, Evans (now Sir Arthur Evans) has carried on supplementary excavations for the purpose of clearing up certain questions connected with the stratification. In the "Queen's Megaron" two earlier pavements built on different systems came to light under the one previously known, and the same results were obtained from excavations in the region of the Olive Press and in the Eastern Magazines and the West Central Court. In this quarter it is now clear that the Egyptian monument of Abnub belongs to the second Middle Minoan period. Particularly interesting was the discovery of the "Keep" of the earliest palace. At Gortyna the Italians have completed the excavation of the Nymphæum in the vicinity of the Pythium. This building, dating from imperial times, was restored in Byzantine days. Work on the "Prætorium" or "Basilica," which lies to the eastward of the temple of Apollo, has resulted in a number of interesting inscriptions in honor of magistrates of the province of Crete and Cyrene. To the north of the temple of Apollo was discovered a sanctuary of Isis dating from Plavian times. The building which bore the great Gortyn inscription has now been demonstrated to be an Odeum adapted by the Romans from an older circular structure. In the region between the north side of the palace and the "agora" at Haghia Triada, Halbherr uncovered a large court which adjoined the Late Minoan I. palace. Beneath it was discovered remains of houses belonging to the time of transition from the Early to the Middle Minoan periods. To the southeast of the palace was found a chapel of the Late Minoan III. period. At Tylissos the Greeks have found a third building lying to the north of the palace, the walls of which in many places stand to the height of about six feet. The house had a long corridor, which was crossed by others at right angles. Traces of a light shaft and a window were found and three double flights of stairs leading to the upper story. Directly under this house were Early Minoan walls.

At Pagasæ in northern Greece thirty more painted gravestones have been recovered from the second of the three towers on the wall that were discovered last. Near this tower a beautiful marble head of the goddess Pasikrata was found in her temple. At Thermon seven houses with foundations of unhewn stone show a culture comparable to that of the prehistoric villages of Olympia, Eretria, and Ægina. The large elliptical building beneath the temple has been excavated so that now it can be made out to be an elongated ellipse divided into pronaos, cella, and apse. Thus, in the second millenium B.C., we find a forerunner of the apsidal temple such as the Boulenterion at Olympia. One of the most interesting discoveries on this site is that the great temple, instead of having the normal number of two pediments, had only one and a pent roof substituted for the other. At Chrysovitza, near Thermon, has been found a series of reliefs representing a sacred feast at which a fat divinity reclines. Excavations carried on this year in Cephallenia to establish the identity of the island with the Homeric Ithaca have not been productive of results. At Corfu the work of clearing the temple of Garitza has been continued. At Thebes work was confined to the western court of the Mycenæan palace.

At Tiryns the German Institute has cleared up the approach from the lower stronghold to the upper inside of the eastern circuit wall, and the relations between the earlier and the later palace have been studied by means of trial pits. It is now certain that the plan of the later palace was a new one and that the introduction of the large megaron was a new feature. Underneath the remains of the Byzantine church to the south of the great outer court were discovered some chambers which are related to the later palace. The most important results from this year's work at Tiryns came from pits sunk in the women's megaron.

Several definite strata were exposed, of which the lowest showed remains of a curved building. In the four from the bottom were recovered a mass of vase fragments corresponding to those of the shaft graves at Mycenæ. The possibility of determining the nature of the building on the lower level is rather remote, owing to the superposition of the later palace. It has also been found that the altar in the great inner court was originally circular in form and not a trench for sacrifices. In the megaron the base which Schliemann erroneously designated as a "basin" is now known to be a support for the throne. The earlier palace is now dated in the Late Minoan I. or Late Minoan II. period; the later palace in the Late Minoan III. period. In the Argolio, the site of Oinœ has been located to the south of Karya, at modern Zenghalatio. At Elis slight remains have come to light. A submerged island has this year been located near the island of Lemnos. The archæologists sent by the Greek government have identified it as the island of Chryseis. The time of its sinking was the beginning of the second century of our era.

AFRICA. Near Bengazi a small Greek marble of Praxitelean style has been discovered.

ITALY. One of the most interesting discoveries of the year in Italy has been that of what seems certainly to be Horace's villa. Although many sites have been given for the famous Sabine farm of Horace, excavations have been carried on for some time at the foot of Mt. Lucretilis at Licenza. As a result of two years' work by Pasqui in this place the details of the villa have been pretty clearly made out. The building is rectangular in form and entirely surrounded by a double wall, of which the outer part was designed to resist landslides from Mt. Lucretilis and to protect the garden on the side toward the river. The garden itself occupies some four-fifths of the villa and is still enclosed by a colonnade. In the centre of the garden is a large pool six feet deep and lined with blue tiles, which apparently was used for bathing purposes or as a fish pond. The villa proper is approached from the garden by a few broad steps and it is sheltered from the heat of the summer sun by a portico. The internal arrangements of the villa are such that the right half of the building was occupied by Horace and his guests, while the other was given over to the servants. In the owner's quarters were found several bedrooms and a large dining-room decorated with marble mosaics in the style of the Augustan period. In the servants' quarters was found the *coldarium*, or hot bath, for men and women. The discovery of beautifully sculptured marbles in the *débris* covering the building leads to the supposition that the estate was not as mean as one might judge from Horace's writings. The villa has unfortunately suffered much by the building of public baths here in the time of Vespasian, and in our own time by the removal of stone by the priest of Licenza in 1857 in order to build the church of this town. Lombardic and Gothic remains have also been found here.

At Monte Cavo a second-century cemetery has yielded a gladiator clad in iron armor. At Ostia, in the excavation of the portico behind the theatre, the mosaics of three more corporations have come to light. These are the *navicularii misuensis*, the *navicularii* of Hippo Diarrhytus, and of Misluvium in Mauritania. On the Via dei Vigili a large room has been excavated and a mosaic pavement brought to light representing four dolphins flanked by symbolic designations of the provinces with which Ostia had most intercourse, namely, Sicily, Africa, Spain, and Egypt. In Rome much has been accomplished. Between the peribolus of the Baths of Caracalla and the baths themselves, the excavators have discovered a *xystus*. Among the finds made on this site are a copy of a Polyclitan bronze, and the upper portion of a head copied from the "Hermes Propylaius" of Alcamenes. A library with niches for *amaria* and *imagines* was also uncovered. Under the basilica of the Flavian Palace, Boni has discovered two narrow staircases which lead to a *piscina*, which was a reservoir of five divisions. This reservoir is still complete, even to its water-tight cement coating, in spite of the fact that it was built in the time of Nero, who used it to preserve rare sea fish for his table. Also on the Palatine a house of imperial times has been opened. Inscriptions, together with other evidence lead to the belief that it was the residence of Tiberius Cæsar and Julia, the daughter of Augustus. The equipment, which was luxurious, included a large bathtub and hot and cold water supplies. Another, and perhaps more interesting, discovery in this quarter is that of Nero's revolving dining-room. In searching for the machine-room Boni found three vertical shafts, one of which was over one hundred and twenty feet deep. Nearby was also found a tank with a chamber twenty by sixty feet, twenty feet below it. In the latter were stones with cogs on a horizontal bed. This is thought to have been the "machine"-room. Particularly interesting was the discovery under the Palace of Domitian of frescoes representing the landing of Helen of Troy. In the basement was discovered parts of an imperial throne. By descending through a hall in the centre of the atrium access was given to beautifully plastered galleries. At Sutri, near Rome, a peasant found in his field a very beautiful bronze figure of a youth doing up his hair. It is but two feet seven inches in height. The workmanship is Græco-Roman, but it goes back in type to some Praxitelean model of the fourth century.

On the east side of the "Street of Abundance" in Pompeii, at the crossing of the roads which run between *insulæ* vi. and vii. of *regio* i. and *insulæ* vii. and xi. of *regio* ix., the excavators discovered a shrine in which were frescoes representing in a frieze the *Dei Consentes* or *Penates Publici* of Pompeii. These as they follow the frescoes are Jupiter, Juno, Mars, Minerva, Hercules, Venus, Mercury, Proserpina, Vulcan, Ares, Apollo, and Diana. On one side of the shrine is a painting depicting a sacrifice by *vici*, *magistri*, and *ministri vici, et compiti*, while an inscription gives the names of four members of the *collegium compiti* for a year not much before 79 A. D. The street between *insulæ* vi. and vii. was found to have been closed by a wooden door, while three blocks of tufa sufficed to prevent the passage of vehicles. Many election notices were found near by, and at least in one instance the writer felt inspired to fall into verse. The terror of the last days of the city has once more been brought home to us by the finding, just outside the Porta Nolana, of the body of a man lying on his back, with legs raised and hands clasping a branch, as if, in his desperation, he had climbed a tree in his efforts to escape, but, overcome by the fumes, had fallen, tearing away the branch as he fell. A second-story dining-room has been found which has several interesting features. The front of the room overhung the street, while below it were two passages, of which one led by a staircase to the dining-room, while the other led to a shop. At one end of the dining-room fragments of drinking-vessels for birds were found, suggesting that this part of the room was used as an aviary.

GERMANY. At Eberswalde, near Berlin, a clay vessel a few inches deep was found in which were seventy-eight objects of massive gold, such as drinking-cups, rings, etc. It is possible that these are Phœnician objects which came to Germany by way of the Baltic.

ARCHITECTS, AMERICAN INSTITUTE OF, NEW ORLEANS CONVENTION OF. See ARCHITECTURE.

ARCHITECTURE. In this field the year 1913 has no specially noteworthy achievement to record. The total volume of building to its credit appeared to have been below rather than above the average of recent years. The disastrous Balkan wars not only put a stop to architectural activity in the regions directly affected, but disturbed the balances of capital in the great financial centres of Europe, vastly increasing the burdens of taxation in France, Germany, and Austria by provoking a tremendous increase in armaments. In the United States capital showed itself unusually timid regarding new enterprises, especially in the East. Never since the great strikes and lockouts of the building trades in 1903-1904 has the volume of building fallen so low in New York City, where many architects either practically closed their offices or reduced their drafting-room forces to a mere skeleton of the usual staff. In the West, particularly on the Pacific Coast, the falling off was much less noticeable.

A detailed account of buildings begun or completed in the various countries of the world during the year 1913 is impracticable, because of the incompleteness of the records of contemporary work in the architectural journals as the YEAR BOOK goes to press. Owing, moreover, to their frequent failure to date the buildings they illustrate or describe, the compiler of this article cannot claim chronological accuracy as to the works hereinafter listed. They are all, however, recent works, though some may have been completed before 1913, and doubtless not a few important buildings of the year have been left out of the account.

THE UNITED STATES AND CANADA. The most interesting and yet disappointing architectural event of the year was the negative result of the important competition for the gigantic Court House to be erected on the proposed new civic centre in New York. The winner of the competition, which was admirably conducted, was Mr. Guy Lowell, of Boston, whose extraordinary design for a vast circular edifice provided in a remarkably ingenious and skillful way accommodation for the fifty-four courts required to be housed therein. Unfortunately the Supreme Court justices, whose approval had been stipulated as necessary to the final adoption and execution of the jury's award, rejected the design absolutely and dismissed the architect, with the solatium of the specified forfeit to be paid him for non-employment. The entire project was thus thrown back to where it was two years before, if not indefinitely postponed.

The most important edifice completed in 1913 was the new Grand Central railway terminal in New York (Warren and Wetmore). While this hardly rivals in size, cost, or scale the colossal Pennsylvania Station (see YEAR BOOK for 1911), it is a magnificent edifice, remarkable especially for its concourse and waiting-room and the admirable arrangement of its many tracks on two levels. It is the dominant feature of an imposing group of buildings surrounding a grand plaza extending to the north, which includes the new Biltmore Hotel, completed at the very close of the year.

For the great Cathedral of St. John the Divine in the same city a new chapel in Renaissance style, by Carrère and Hastings, was nearly completed, and the adjoining diocesan buildings—Choir School, Deanery, and Synodal Hall, all three by R. A. Cram, the present diocesan architect—were completed and occupied. Later, Mr. Cram's designs for the completion of the cathedral (nave, transepts, and crossing) were exhibited and provoked much discussion. Of at least equal importance was the completion of the new St. Thomas's Church on Fifth Avenue, by Cram, Goodhue, and Ferguson; the only stone-vaulted church in New York, if not in the United States, and a distinctly notable achievement in the French Gothic style. Several other churches, by Goodhue, Ludlow, and Peabody, and others, were begun or completed in various versions of the Gothic styles, illustrating the growing vogue of the modern Gothic revival. Among public buildings the new Municipal Offices Building in New York, by McKim, Mead, and White, under construction for four years, was completed and in part occupied. It stood conspicuously first in size, beauty, and importance. (See ARCHITECTURE, YEAR BOOK, 1909.) The fine new Post Office by the same firm, on Eighth Avenue, opposite the Pennsylvania Station, was completed, though the old downtown Post Office was not wholly discontinued. The same architects were also the designers of the new School of Journalism and the Furnald Hall Dormitory of Columbia University.

The *Maine* Monument, commemorating the sinking of the *Maine* in Havana Harbor on February 24, 1898, was not quite completed on the fifteenth anniversary of that event, but was unveiled somewhat later. It stands at the entrance to Central Park, and is the joint work of H. V. Magonigle, architect, and A. Piccinilli, sculptor.

In the field of commercial architecture the most important item in New York was the beginning of work on the new Equitable Building, on the site of the building burned in 1911. It will cover the largest area of any one commercial structure in New York, and will be a "skyscraper," though not competing with the Woolworth and Singer buildings. The multiplication of loft buildings and hotels continued, though not on the scale of recent years. It was observable that matt-glazed white terra-cotta was increasingly used for the exteriors of loft buildings, not always with highly artistic results. Gothic details, freely treated, seem also to find increasing favor in commercial architecture.

Outside of New York the most important architectural enterprise on foot was the Panama-Pacific Exposition at San Francisco. Owing no doubt to the overdoing of expositions in recent years, it had attracted less attention than it deserved, at least in the too self-centred East. It was to be arranged on the group plan around distinctive courts (e.g. "Court of the Four Seasons," by H. Bacon, of New York; "Court of Flowers," by G. W. Kilham, of Boston, etc.), and to be adorned by an "Echo Tower," by L. C. Mullgardt. The architecture was to be highly ornate, lacking somewhat in the unity of effect hitherto sought in recent expositions.

Among the most important of recent buildings at Chicago was the Hotel Blackstone, the largest and finest of a number of new hotels opened during the year in the Middle West and South.

Architecture seemed to have been fairly prosperous on the Pacific Coast. Early in the year Los Angeles was reporting permits for new buildings at the rate of 40 per day, including one for the erection of a huge family hotel, the Casa del Carmine Real, with 900 rooms. The disastrous tornado at Omaha, which wrecked 642 houses and damaged over 1600 others, was followed by an energetic rebuilding. Fargo, N. D., reported an unusual architectural activity—a bank, several stores, an auditorium, and an opera house being among the new enterprises. At Seattle the L. C. Smith building, a 42-story skyscraper which had been two years in building, was completed near the end of the year. It is a tower somewhat of the New York type, and was probably the tallest building west of the Rocky Mountains.

In the South there was probably a normal activity, especially in hotel building, exemplified by the Wade Hampton, begun at Charleston, to cost a million dollars, the Georgian Terrace at Atlanta, by W. L. Stoddart, and many others. Charleston also announced the beginning of a costly yacht club building; but in general the Southern architecture was not fully reported in the professional journals.

In the national capital the year witnessed the completion of the fine new city Post Office, a marble structure near the Union Railway Station, and of the Scottish Rite Masonic Temple, by J. R. Pope. From Boston the most important items were the completion and opening of the huge Copley Plaza Hotel, by H. J. Hardenbergh, near Trinity Church, and the completion of the Perkins Institution for the Blind, a group of Gothic buildings by R. C. Sturgis. In Albany the important competition for a new Court House was won by Hoppin and Koen, of New York.

The colleges and universities have had about the usual amount of additions to their buildings. The most important was the completion of the extensive and impressive group for the Graduate School of Princeton University, by Cram, Goodhue, and Ferguson, a vast quadrangle with dormitories, class-rooms, seminars, library, director's residence, and Cleveland Memorial Tower, on a commanding site a mile from the rest of the university. At Cincinnati the Hebrew Union College, by A. L. Fechheimer; at Vassar College a new students' building, by McKim, Mead, and White; at Cornell new residential halls, by Day Brothers and Klauder; and at West Point progress on the buildings of the Military Academy, are among other educational buildings reported. Architectural improvements connected with city planning are reported under that title.

THE AMERICAN INSTITUTE OF ARCHITECTS at its recent convention at New Orleans reorganized its administrative offices, elected R. Clipston Sturgis, of Boston, president, and D. Knickerbocker Boyd, of Philadelphia, secretary; and without reaching a final decision discussed at considerable length three important questions: The establishment of a national bureau or department of fine arts; the adoption of the English system of quantity surveying, and a new basis for the schedule of professional charges. All these questions are attracting much attention in the United States at present.

CANADA. Aside from the usual activity there was reported an important competition for a city hall for Winnipeg, Manitoba, to cost $3,000,000, and the erection of a building for the Imperial Bank of Canada, also at Winnipeg, by Darling and Pearson. The same architects were also the designers of the new Convocation Hall for Toronto University. The commission for some new buildings for the University of Manitoba was awarded to local architects in Winnipeg. This university established a department of agriculture, under the charge of Professor A. A. Stoughton, of New York. At Regina (Sask.), a large hotel and railway station was begun.

EUROPE. In Great Britain there was considerable building for educational institutions. Among new edifices of this class begun or completed were: An elementary teachers' training college at Hull (Crouch, Butler, and Savage); a diocesan college at Galway, Ireland, by W. A. Scott; a new technical institute at Cardiff, Wales, by Jones and Thomas; at Glasgow a new training college, by Honeyman, Keppie, and Mackintosh; at Birmingham a group of buildings for the Bluecoat School, by M. O. Type; and at Cambridge an interesting new quadrangle for Cheshunt College, by H. Grayson. From London the most important items appeared to be the beginning of work on Sir Aston Webb's new façade for Buckingham Palace; the advancement of work on the Marylebone Town Hall, the County Council Building, the vast group of King's College Hospital at Denmark Hill, by W. A. Pite; the completion of a building for the School of Architecture of University College, the new Middlesex Guildhall in Westminster, by Gibson, Skipworth, and Gordon; and a new building for the Institute of Civil Engineers, in neo-classic style, by J. Miller. Liverpool began the erection of a new tuberculosis hospital and continued work on the cathedral; Devenport selected a design for a new municipal building, by Ashley and Newman; Glasgow initiated a project for extensive additions to the municipal building; and Manchester began the erection of a new theatre by Farquhar, Richardson, and Gill.

Architectural education was being rapidly developed in England. During 1913 the department of architecture of Sheffield University was transferred from the faculty of applied science to that of fine arts (following thus the example of Columbia in 1904); the two schools of University College and King's College at London were consolidated and housed in the new building of University College previously mentioned; Cambridge University, following also the example of Columbia, authorized the acceptance of two years of architectural studies as counting towards the degree of bachelor of arts; and the first "atelier" after the Beaux-Arts fashion was established, with Arthur Davis as "patron."

In the field of historic architecture much concern was aroused in London by the precarious condition of two famous buildings. St. Paul's Cathedral was found to be seriously menaced by the settling of its foundations, owing to the draining away of subterranean water by various excavations near by (a result which has also in New Orleans, following the completion of the new sewerage system of that city, caused the settling of the foundations of the old cathedral, which was in great danger therefrom). The superb timber ceiling of Westminster Hall was found to be riddled with worm-holes, though perfectly sound not many years ago, and the collapse of that precious mediæval construction (1399-1495) was feared to be imminent. Extensive excavations at Old Sarum, near Salisbury, have uncovered the ruins of William the Conqueror's fortress, and of Bishop Oswald's church—the original cathedral of the diocese. The establishment of a ministry of fine arts has been actively discussed during the year. The question of the registration of architects, also vigorously agitated, has made little progress.

In Germany there was about the usual activity in the same lines as in recent years, and the same tendencies manifested themselves. The "Moderne Kunst" produced, among many very eccentric and bizarre edifices, some excellent department stores and warehouses; *e.g.* the Iietz Wahrenhaus at Hamburg, by Cremer and Wolfenstein; while a new museum for Königgratz displayed this movement in its most virulent form. Many new townhalls were begun or completed, among them those for Landsberg, Iietz, Lembach, and Döbeln; a *hauptarchiv* (hall of records) for Schwerin; a Cinema theater of considerable importance for Charlottenburg (Berlin), by Oskar Kaufmann; and plans were adopted for a group of buildings for the Düsseldorf Art Academy, by Wach and Beck. Among the best works, as usual, were those of an industrial or utilitarian character, like the fine new Bismarck Bridge at Saarbrück, and a number of excellent factory buildings. The work of town-planning, especially of new garden-suburbs of large cities, continued with very varied results; in many cases an excellent layout was vitiated by the ugliness or monotony of the houses designed for it. The German architects seemed to find it hard to occupy the middle ground between innocuous mediocrity and a wholly eccentric and extreme originality of design. This was conspicuous in the drawings exhibited in the recent great Jubiläums Kunstausstellung at Berlin.

Considerable excitement was aroused by the interference of the Kaiser in the award of the competition for the new embassy to be built at Washington. The designs submitted were of indifferent merit; the prize was awarded to Bruno Möhring for a design which was so unacceptable to the Kaiser that he ignored the jury's award and gave the commission outright to the court architect, Herr von Shue. This action, deplorable from the point of view of professional ethics, will doubtless result to the advantage of the architecture of Washington.

There was much activity in Austria, both in Vienna and Budapest, and in the smaller cities. The veteran Otto Wagner was the architect of the new Lupus Hospital at Vienna; the Wiener Bankverein erected a fine "palace" by Gotthief and Neumann, and Karl Hoffmann was the architect of the great new Kaiser Franz Josef Museum at Vienna. At Budapest, besides the huge new Imperial Palace, an imposing block of buildings not hitherto reported, we note a Reformed church, by Achay Alabar, and the new Hungarian Merchants' Union, by Bela Lajta, marked by the extreme eccentric ugliness of which that architect is an unrivaled master.

From France is reported a large volume of official architecture in Paris, Bordeaux, Versailles, Nancy, and many smaller cities—hospitals, asylums, town halls, schools, etc. The most important building of the year at Paris was the Théatre des Champs Elysées, by Bonvard and Vandevelde, whose singularly stiff and unsympathetic lines, *art nouveau* disregard of all traditional forms, and inharmonious decoration excited much heated controversy. Additional wings for contagious diseases have been built at the Hôpital St. Joseph, of a straightforward and pleasing architecture, by P. André. Competitions have been held for cheap tenement-house blocks, and projects actively discussed for the layout of encircling suburbs at and near the site of the present fortifications. At Bordeaux a vast block of handsome barracks was completed for the *gendarmerie*, by M. Gervais; at Villejuif an extensive asylum for the aged, by J. Mouze, and plans prepared for suburbs for Nancy and Dunkerque (Belgium).

In Belgium interest centred in the exposition at Ghent, and the improvements in that city in connection therewith, including the completion of the Post Office. The exposition buildings were in the main by O. Van de Voorde; the Colonial Palace by M. Caluwaerts.

From other parts of the world available reports have been meagre. In India the Town Planning Commission, consisting of Capt. G. S. C. Swinton, J. A. Brodie, and the architect, S. Lutyens, charged with the selection of a site for the new capital at Delhi, have adopted finally the so-called northern site, south and southwest of the present city, near the Jumna, placing the government centre on Raisina Hill. The controversy as to architectural style still continued, but was likely to eventuate in a group of neo-classic buildings. In South Africa the erection of important buildings continued at Cape Town, Pretoria, and other cities; notably the Union Buildings, by Herbert Baker, on Menjeskop at Pretoria (railroad station, post office, hemicycle, etc.), and the cathedral at Uganda, by Beresford Pite. A great public library was erected at Melbourne, Australia (Bates, Peebles, and Smart), with the largest concrete dome as yet attempted anywhere, 124 feet 6 inches in span

From other countries the records available have been too fragmentary to permit of mention.

Necrology. The losses to the architectural profession by death have been notable: In France, Constant Moyaux, architect of many buildings, including the new Cœur des Comptes at Paris; in England, John Belcher, best known in America as collaborator in Belcher and Macartney's *The Later Renaissance Architecture of England;* in Germany, Heine Schneider, a distinguished specialist in hospital architecture; in the United States, L. de C. Bergh, W. P. P. Longfellow, and the veteran George B. Post, besides many others of lesser note. See Necrology, also Foundations.

ARC LAMPS. See Electric Lighting.

ARCTIC EXPLORATIONS. See Polar Exploration.

ARGENTINA. A federal republic of South America. The capital is Buenos Aires, co-extensive with the Federal District.

Area and Population. Argentina consists of fourteen provinces, ten territories, and the Federal District. The area is known only approximately; a recent planimetric calculation places it at 2,806,400 square kilometers (1,083,551 square miles). Another calculation, made at the geographical institute of the University of La Plata, places the area at 2,789,462 square kilometers (1,077,011 square miles). The last general census (1895) returned 3,954,911 inhabitants (exclusive of an estimated 90,000 not enumerated); an estimate of the total population, December 31, 1910, was 7,121,822 (of whom some 30,000 uncivilized Indians).

It is clear that the number of inhabitants is not known even approximately; for an estimate of December 31, 1912, reported as official, placed it at 8,700,000. An increase of nearly 1,580,000 in two years is not plausible. In the provinces, the greatest density is in Tucumán, reported at 13 per sq. km. in 1910; Santa Fé, 7; Buenos Aires and Entre Ríos, each 6; Corrientes, 4.7; Córdoba, 3.5. The city of Buenos Aires, with an area of about 72 square miles, had an estimated population of 1,444,082 on April 1, 1913. Other cities, with recent estimates of population, are: Rosario, 220,000; La Plata, 99,766; Córdoba, about 100,000; Avellaneda, 87,000; Tucumán, 78,695; Bahía Blanca, 72,706; Mendoza, 60,000; Santa Fé, 48,600; Salta, 40,000; Paraná, 35,857; Corrientes, 30,000.

In the period of 1857-1911, immigrants by sea numbered 3,924,952, and emigrants 1,156,871. Of the immigrants, 2,052,925 were Italians, 1,132,460 Spaniards, 201,732 French, and 115,827 Russians. In 1910 immigrants and emigrants numbered 289,640 and 97,854, respectively; in 1911, 225,772 and 120,709. Immigrants in 1912 numbered 323,403, of whom 165,662 were Spaniards, 80,583 Italians, 20,832 Russians, and 19,792 subjects of Turkey. The government encourages immigration, but advises all newcomers to go to the rural districts, where agricultural labor is in demand, rather than remain in the cities, especially Buenos Aires, where they are not needed and where prices are excessive.

Education. In 1911 about 45 per cent. of the children of school age were in attendance, and of these only about 13 per cent. could read and write. About 50 per cent. of the inhabitants over six years old are illiterate. In 1911 the reported number of primary schools (public and private) was 7183, with 22,456 teachers and 746,725 pupils. For secondary education the government maintains 27 national colleges (10,227 students). There are 62 normal schools (about 6000 students) and some 20 schools for special and technical instruction. Higher and professional instruction is provided by the three national universities at Buenos Aires, La Plata, and Córdoba and provincial universities at Santa Fé and Paraná (total students, over 7300, the majority of whom being at Buenos Aires).

Industries. The prosperity of Argentina is due to its agriculture and stock-raising; of these, agriculture in recent years has made the more notable progress and continually forces the grazing industry farther from the large centres of population. There is little mining. Milling and meat-packing are large industries. The area under cultivation in the year 1911-12 was about 21,884,000 hectares, or 1,109,000 hectares more than in the preceding year. The area under alfalfa was 5,955,000 hectares. The following are other important crops, with area in thousands of hectares, production in metric quintals, and yield per hectare in 1911-12:

	Hectares		Quintals		Qs.
	1911-12	1912-13	1911-12	1912-13	ha.
Wheat...	6,897	6,918	45,230,000	54,000,000	6.6
Oats......	1,031	1,192	10,040,000	16,820,000	9.7
Corn.....	3,422	3,830	75,150,000	50,000,000	22.0
Flaxseed.	1,630	1,733	5,724,000	11,300,000	3.5

In 1911-12 the alfalfa crop was 4,038,320 metric tons; raw sugar, 180,800 tons; wine, 3,876,369 hectoliters. The total estimated value of agricultural (and forestal) crops in 1911-12 was 672,912,190 pesos gold; of this amount 230,320,367 pesos was credited to the province of Buenos Aires, 138,187,150 to Santa Fé, 100,324,570 to Córdoba, 38,846,037 to Mendoza, 33,438,940 to Entre Ríos, and 30,839,380 to Tucumán. Livestock (estimate of December 31, 1911): 28,786,168 cattle, 8,894,031 horses, 534,813 mules, 319,315 asses, 67,383,952 sheep, 4,301,955 goats, 2,900,000 swine. As a sheep-raising country, Argentina ranks second, Australia being first, the number of sheep in 1910 is stated at 67,383,952. The value of stock-raising products in 1911-12 was estimated at 394,917,922 pesos gold, of which 183,319,391 pesos was credited to Buenos Aires province, 46,961,095 to Entre Ríos, 35,875,753 to Córdoba, 35,034,437 to Santa Fé, and 19,371,037 to Corrientes.

Commerce. In 1912 imports and exports were valued at 384,853,469 and 480,391,256 pesos gold, exclusive of coin and bullion. Par value of the peso is 96.447 cents. Imports and exports of merchandise have been as follows, in thousands of pesos gold:

	1902	1907	1910	1911	1912
Imports....	103,039	285,861	351,771	366,811	384,853
Exports....	179,487	296,204	372,626	324,698	480,391

Imports and exports of coin and bullion have been: 1909, 67,454,000 and 1,247,000 pesos; 1910, 37,028,000 and 1,670,000; 1911, 12,764,000 and 3,009,000; 1912, 36,078,000 and 586,000. Principal classified imports in 1911 and 1912, in thousands of pesos gold: Textiles and manufactures thereof, 69,698 and 78,370; iron and steel and manufactures thereof, 43,086 and 45,998; earthenware, earths, stone, coal, etc., 33,202 and 33,617; vehicles and railway equipment, 36,865 and 32,799; building materials, 33,789 and 31,265; food products, 29,337 and 30,140; oil, grease, etc., 15,890 and 18,446; wines, liquors, and other beverages, 13,799 and 14,677; metals and manufactures thereof (other than iron and steel), 15,480 and 14,367; chemicals, drugs, etc., 12,178 and 14,281; agricultural implements and machinery, 13,692 and 12,552; timber, woods, straw, and manufactures thereof, 10,401 and 9888; paper and manufactures thereof, 8670 and 9867; electrical apparatus, 6683 and 9309; tobacco, 5892 and 7594. Subdivision of textile import in 1912: Cotton, 38,138; wool, 14,374; silk, 6548; other, 19,310. Iron and steel in 1912: Primary and relatively primary material, 22,343; manufactures, 23,655. Value (in thousands of pesos) of the largest specific imports in 1912: Coal, 25,956; colored woven prints, 10,690; sacking, 8658; pitch pine, 8461; machinery, 6986; galvanized iron, 6384.

Argentine exports are classified under six heads, as follows (in thousands of pesos):

	1909	1910	1911	1912
Agricultural	230,504	196,582	139,764	278,187
Pastoral	153,548	161,007	168,395	188,216
Forest	8,927	10,565	12,255	8,983
Fish and game...	752	1,429	1,663	2,008
Mineral	743	540	565	285
Miscellaneous	2,876	2,505	2,055	2,712
Total	397,351	372,625	324,698	480,391

Classified agricultural exports in 1911 and 1912, in thousands of pesos: Primary products, 129,711 and 264,495; elaborated products, 4828 and 7135; by-products, 5225 and 6556;—classified pastoral exports: Ordinary animal products, 137,383 and 155,028; elaborated animal products, 17,640 and 19,780; live animals, 9460 and 10,965; by-products, 3911 and 2443. The meat export (including livestock) of Argentina increased from 6,684,945 pesos gold in 1885 to 56,502,816 in 1912; in 1903 the export of the four principal agricultural products—wheat, corn, linseed, and oats—was 96,224,509 pesos, and in 1912 262,815,449. The development of the leading exports is shown below, in thousands of pesos:

	1902	1910	1911	1912
Corn	22,994	60,261	2,767	108,908
Wheat	18,585	72,202	80,675	97,835
Wool	45,811	58,848	50,494	58,149
Cowhides	15,167	30,711	34,440	42,130
Frozen and chilled beef	7,002	25,371	31,283	34,285
Linseed	17,841	44,604	33,580	34,214
Oats	503	8,143	11,666	21,859
Rendered tallow and grease	6,209	9,537	11,768	11,315
Cattle	2,848	4,056	8,201	9,140
Sheepskins	8,487	8,624	7,761	8,520
Wheat flour.........	1,604	4,947	4,739	6,926
Bran	1,727	4,522	4,612	5,941
Frozen mutton......	6,406	6,008	6,873	5,614
Quebracho extract..	910	4,429	4,980	4,837
Quebracho logs.....	2,477	5,604	6,897	3,569
Horse hair..........	1,065	1,335	1,582	2,111
Canned meat........	164	1,215	1,541	1,770
Butter	1,278	1,151	558	1,471
Goatskins	1,116	1,313	1,284	1,461
Whale oil...........	.....	889	1,206	1,438
Jerked beef.........	2,647	1,033	1,662	1,401
Powdered meat.....	.....	1,268	905	1,350
Meat extract.......	593	3,047	1,031	1,224
Sundry frozen meats	164	722	947	1,018

Imports and exports by countries, in thousands of pesos:

	Imports		Exports	
	1911	1912	1911	1912
United Kingdom.	108,637	118,669	91,841	121,373
Germany	65,862	63,942	43,073	53,995
United States....	52,353	59,127	24,300	32,391
France	38,027	37,619	39,692	36,052
Italy	29,346	32,487	13,587	21,148
Belgium	19,485	20,371	35,626	37,258
Spain	11,279	11,928	2,178	3,582
Brazil	8,461	9,547	17,824	22,646
Austria-Hungary.	4,304	3,477	2,398	2,897
Netherlands	2,978	3,442	6,440	16,027
Uruguay	3,070	2,497	2,341	4,714
Sweden	1,667	2,290	1,004	1,496
For orders.......	.....	.....	36,357	114,904
Total, including other	366,811	384,853	324,698	480,391

The exports "for orders" are not recorded at the Argentina ports as for specific countries, but are subject to cable or other orders as to final destination. Nearly all of these shipments reach the western European countries ultimately and in about the same proportion as the direct shipments given in the table above. The following figures show the percentage of imports and exports as shared by the more important countries:

	Imports			Exports		
	1910	1911	1912	1910	1911	1912
U. Kingdom....	31.1	29.6	30.8	21.7	28.3	25.3
Germany	17.4	18.0	16.6	12.1	13.3	11.3
United States...	13.8	14.3	15.4	6.8	7.5	6.7
France	9.6	10.4	9.8	10.1	12.2	7.5
Italy	9.0	8.0	8.5	2.8	4.2	4.4
Belgium	5.6	5.3	5.3	8.2	11.0	7.8
For orders.......	...	....	....	27.8	11.2	23.9

The noticeable decline in the 1911 percentage "for orders" was due largely to the poor corn crop.

Imports and exports at the principal ports in thousands of pesos:

	Imports		Exports	
	1911	1912	1911	1912
Buenos Aires....	292,936	315,162	158,467	181,767
Rosario	37,800	32,466	44,114	85,119
Bahía Blanca...	8,167	11,476	25,645	69,010
La Plata.........	9,924	9,251	30,527	32,491
Santa Fé.........	3,798	3,397	12,572	13,965
Campana	3,645	3,033	7,245	7,331
San Nicolás.....	5	67	2,389	20,820
Zarate	865	1,184	8,516	11,105
Concordia	417	384	7,852	10,658

SHIPPING. The following table shows the movement at the ports in 1912, distinguishing the over-sea shipping from the total, which includes coasting and fluvial:

	Over-sea		Total	
	Vessels	Tons	Vessels	Tons
Steamers:				
Entered	4,100	10,252,962	35,171	21,392,854
Cleared	4,065	10,320,108	34,272	21,226,739
Sail:				
Entered	233	288,735	37,009	2,704,985
Cleared	225	278,730	38,732	2,586,918
Total	8,623	21,140,535	135,184	47,911,496
Buenos Aires.	4,450	11,770,699	40,254	19,052,093

Merchant marine in 1912: 446 steamers, of 120,882 tons net, and 1241 sail, of 96,896 tons net.

COMMUNICATIONS. The development of the

Argentine railways is shown in the following table:

	1890	1900	1910	1912
Kilometers	9,432	16,563	27,989	32,853*d*
Capital *a*	321,843	541,576	900,430	1,120,210
Passengers *b* ..	10,070	18,296	59,015	73,212
Freight *c*	5,421	12,660	33,607	38,870
Receipts *a*	26,049	41,404	110,941	129,700
Expenditure *a*..	17,585	23,733	65,930	81,348

a In thousands of pesos gold. *b* In thousands. *c* In thousands of metric tons. *d* 20,414 miles.

In 1912 the length of government railway was over 5600 kilometers. Railway of mean gauge constitutes less than one-twelfth of the total; narrow gauge, less than one-third; broad gauge, nearly two-thirds. In 1910, the telegraph extension amounted to 61,005 kilometers line, 161,476 kilometers of wire, and 2825 offices; post offices, 2995. A large new central station of the Central Argentine Railway was under construction at Buenos Aires, and considerable work was being done on the suburban and rapid transit systems of that capital. See RAPID TRANSIT. Other construction during the year were the La Plata-Meridiano, the Villa Balastir-Rosario-Santa Fé, the Concordio-Concepcion, numerous branches of the Buenos Aires Great Southern, and extensions of the Buenos Aires Great Western, the Rosario-Mendoza and the communication with Chili by the Lerna Valley. The construction of a railway from Mercedes to Paso Claro was approved by the legislature of Correintes, while plans and specifications for the construction of a state line from San Juan to Jachal were completed towards the end of the year and tenders for construction were shortly to be called for. The province of Buenos Aires was negotiating for the purchase of the La Plata Railway and it was reported sold for $500,000.

FINANCE. The unit of value is the gold peso, worth 96.5 cents; the paper peso, under the conversion law of 1899, is current at 0.44 of the gold peso. In 1905 the revenue in paper and in gold reduced to paper value, amounted to 205,341,838 pesos; in 1908, 254,232,013; in 1910, 304,679,200. The budget for 1913 showed an estimated revenue of 126,464,301 pesos paper and 94,964,581 pesos gold; expenditure, 420,975,866 pesos paper. The larger estimated receipts were: Customs, 83,830,000 pesos gold; excise, 64,929,000 paper; stamps, 18,000,000 paper; posts and telegraphs, 15,370,000 paper; port dues, etc., 8,392,000 gold. The larger avenues of estimated expenditure were: Public debt, 83,936,194 pesos paper; ministry of justice and public instruction, 56,857,808; interior, 46,799,301; war, 29,840,716; marine, 26,083,313; finances, 22,030,140; agriculture, 15,517,877; pensions, 13,192,000; the total of 420,975,880 pesos paper, including extraordinary expenditure amounting to 108,135,504 pesos.

The public debt, December 31, 1912, amounted to 457,745,687 pesos gold and 988,082,434 pesos paper, comprising the foreign debt of 297,993,975 pesos gold, the internal debt of 159,751,700 pesos gold and 167,619,140 pesos paper, the floating debt of 34,064,123 pesos paper, and outstanding paper money aggregating 988,082,434 pesos.

NAVY. In 1913 the Argentine navy included the following: I dreadnaught (*Rivadavia*, launched in 1911), of 28,000 tons; 2 old coast guards (1890 and 1891), of 4600 tons; 1 old coast guard (*Almirante Brown*, 1880), of 4200 tons; 4 armored cruisers (*Garibaldi*, 1896; *General San Martín*, 1897; *General Belgrane*, 1898; *Pueyrredon*, 1898), of 27,400 tons; 3 protected cruisers (1890 to 1895), of 11,620 tons; 2 old torpedo cruisers, of 1776 tons; 2 armored river gunboats (1908), of 2000 tons; 11 torpedo-boat destroyers, of 9000 tons; torpedo boats, transports, several old craft, etc. In April, 1913, four new torpedo boats, to take the place of the four sold to Greece in 1913, were ordered from the Krupps; they will burn oil fuel only. The dreadnought *Moreno*, launched in 1911, was nearing completion late in 1913 at the yard of the New York Shipbuilding Company, of Camden, N. J. The *Rivadavia* was completed in 1913 by the Fore River Ship and Engine Building Company, of Quincy, Mass. She ran her trials in August, attaining a speed of 22½ knots. She has a length of 585 feet, beam 98 feet, normal draft 27 ft. 6 in., average horse power 40,000, and full-load displacement 30,600 tons. She has a main battery of 12 12-in. guns, and in addition 12 6-in., and 16 4-in. guns and 2 21-in. torpedo tubes. Her complement of men is 1050. The cost of the *Rivadavia* and sister ship *Moreno* is about $22,000,000.

GOVERNMENT. Argentina is a federal republic, with a constitution similar to that of the United States. The federal legislative power is vested in a congress of two houses, the Senate and the Chamber of Deputies. The Senate has 30 members, elected indirectly for nine years, two from each of the fourteen provinces and the Federal District; the Chamber has 120 members, elected directly for four years. The executive power rests with a president who is chosen for a term of six years by an electoral college and is ineligible for the next term; he is assisted by a responsible ministry of eight members. For the term ending October 12, 1916, president, Roque Sáenz Peña; vice-president, Victorino de la Plaza. The provinces elect their own governors and legislatures. The territories are administered by governors appointed by the president. Buenos Aires (Federal District) is administered by a mayor, whose appointment by the president is approved by the City Council (elected by popular vote) and by the Federal Senate.

ARMY. The army of Argentina consists of a regular army, a national guard, and a territorial army, the last two being organized by provinces. The effective strength provided for consists of 1449 officers, and 20,082 men. Mobilized for war the army of the republic should supply an effective strength of 2,600,000 men, of which about 220,000 have received military instruction. The active army was organized in ten brigades of two regiments each of infantry, nine regiments of cavalry of four squadrons each, in addition to a regiment of mounted troops of five squadrons for escort service, five regiments of field artillery, divided into two groups of two batteries each, one regiment of howitzers divided into three batteries of four pieces each, two regiments of mounted artillery divided into four batteries, one section of heavy artillery, five battalions of engineers divided into three companies each, of which one are pioneers, one bridge troops and one telegraph troops. One battalion of railway troops of three companies, and five companies of train. The army is recruited by compulsory service between the ages of 20 and 45 years and the selection is on a territorial basis, the recruits being selected by lot. The duration of active service is one year, after which the men pass into the reserve until the age of 30. A portion of the reserve is designed to complete the war effective strength of the permanent units, while the remainder form the units of the second line. The reservists have two periods each month of instruction and once with rifle practice. The troops of the first line are armed with a new model Mauser rifle and a Krupp quick-firing field gun. In 1913 a second battalion was added to each of the even numbered infantry regiments. This decree further provided that the existing third companies of the first battalions both of even and odd-numbered regiments in each brigade would constitute the second battalion of even-numbered regiments. Consequenly all of the 20 infantry regiments will have two battalions of two companies each.

History

The President's Message. The National Congress was opened on May 7. In his message to Congress, President Peña commented favorably on foreign relations, calling attention to the fact that survey monuments were being erected along the Chilean boundary, that the Paraguayan boundary survey had been resumed in the Chaco region along the upper reaches of the Pilcomayo River, and that the disputed Bolivian boundary was being surveyed in accordance with the protocol signed at La Paz, September 15, 1911. The president also stated that the revenues for 1912 had amounted to 405,237,115 pesos, thus giving a surplus of 2,398,476. Moreover, that revenues were steadily increasing was shown by the receipts for the first quarter of 1913, which exceeded those of the first quarter of 1912 by 16,034,911 pesos gold. The development of railways was emphasized. The total length of non-private railways, the president said, amounted to 32,624 kilometers on January 1, 1913.

Congress. Among the foremost problems presented to Congress was the regulation of the packing industry. The exportation of meat had fallen under the control of a combination which employed such unfair methods of competition as selling livestock below cost in order to ruin competitors, and making and breaking agreements limiting the production of meats for England. As a partial remedy for this situation, the minister of agriculture presented a bill which would permit the slaughter for export of 4000 head of cattle and 30,000 sheep a week, but would levy a fine of 50 pesos a head for any above that number. The executive would be entrusted with power to raise or lower the limit as the exigencies of the moment required. This measure, together with the establishment of a general market for livestock, and the enactment of anti-combination laws discussed late in October, would, it was hoped, insure the stability and prosperity of the meat industry.

Finance and the construction and operation of railways were the subjects of lively debate, and occasioned a cabinet crisis. The difficulty was overcome by the reconstruction of the cabinet with three new ministers: Finance, Dr. Lorenzo Anadon; public works, Dr. Carlos Meyer Pellegrini; and education and justice, Sr. Carlos Ibarguren. The ministry now presented a united front and could take up the railway question with more vigor. During the course of the discussion the Senate evolved an interesting proposition to rent the state railways out to private companies. In the Chamber a proposal of the *Cia. Regie Generale de Chemino de Fer et Travaux Publics* was heard; the company would construct 2320 miles of state railways at an estimated cost of $105,474,700, to be worked 6 years under state control, and pay 80 per cent. of the profits to the state. Finally the minister of public works decided on a programme of railway construction which would involve the expenditure of 2,007,967 pesos for the remainder of 1913, and 5,000,000 pesos up to October 31, 1914. As far as the budget for 1914 was concerned, the receipts were estimated at 451,488,000 pesos and the expenditures at 451,439,000 pesos, of which 34 millions were for harbors, 20 for railways, and 63 for education. The policy of the government was explained by the minister of finance as a gradual abandonment of the protective tariff; and, as a step towards the accomplishment of this end, he proposed to lower the import duties on sugar.

Other markets under discussion by the congress were: A bill authorizing the national *Banco Hipotecario* to issue loans to public employes who wished to build or buy dwellings for themselves; and a bill to pension the staffs of state and private railways. A code of sanitary regulation and pure food laws was promulgated. A bill for the punishment of "white-slave dealers" was introduced by the Socialist deputy, Dr. Palacios (in the last elections the Socialists elected one senator and two deputies), and passed by both houses.

Foreign Relations. On June 17 a protocol was signed with Bolivia for the immediate construction of a railway from Tupiza in southern Bolivia to Quiaca. The delimitation of the boundary along the Chilean, Paraguayan, and Bolivian frontiers has already been referred to under the president's message (*supra*). Benito Villanueva, vice-president of the senate, planned to sail for the United States on November 26, to repay the visit which Mr. Elihu Root, as Secretary of State, paid to Argentina several years ago; the date of Señor Villanueva's departure was delayed, however, by the trials of the new Argentine super-dreadnought *Rivadavia*.

In November Colonel Roosevelt, ex-President of the United States, visited the Argentine Republic. Although the numerous utterances of the colonel were quite unofficial, since he spoke as a private citizen, nevertheless great interest attached to his speech at the University of Buenos Aires in which he declared that the Argentine Republic, now capable of defending itself, should be considered as an equal of the United States, a co-guarantor of the Monroe Doctrine.

Miscellaneous. The president was authorized to have a naval hospital constructed at Buenos Aires at a cost of 2,541,130 pesos. On June 8 a statue of ex-President Avellaneda was unveiled at Buenos Aires. In July the republic celebrated the ninety-seventh anniversary of its independence.

ARIZONA. **Population.** The population of the State in 1913, according to the estimates of the Census Bureau, was 230,808.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	17,000	476,000	$ 524,000
	1912	16,000	528,000	528,000
Wheat	1913	29,000	928,000	1,021,000
	1912	23,000	707,000	778,000
Oats	1913	7,000	301,000	150,000
	1912	6,000	268,000	188,000
Potatoes	1913	1,000	75,000	101,000
	1912	1,000	125,000	156,000
Hay	1913	135,000	*a* 540,000	5,940,000
	1912	113,000	384,000	4,608,000

a Tons.

Mineral Production. The production of gold, silver, copper, lead, and zinc in the State in 1913, according to estimates made by the United States Geological Survey, was valued at about $71,000,000, an increase of nearly six per cent. over the value of 1912, which was $67,050,784. The copper output was valued at nearly $64,000,000; the gold at about $3,948,000; the silver at more than $2,263,000; the lead at $612,000; and the zinc at $510,000. The yield of gold in 1913 was more than 191,000 ounces, an increase of five per cent. over the output of 1912. The silver production increased about eight per cent., amounting to more than $3,773,000. Arizona led all other States in 1913 in copper production. There was a mine production of about 414,593,000 pounds. This was an increase of nearly 49,000,000 pounds over the production of 1912. As the price of copper was slightly lower in 1913, the value of metal increased only about $3,500,000. There were eleven active copper smelting plants in the State during the year.

In 1912 Arizona produced 359,322,096 pounds of blister copper, as compared with 303,202,532 pounds in 1911. The production of 1912 was the largest in the history of the State, or of any State, and about 29 per cent. of the total output of the country. The greater part of the production is from five districts—the Bisbee, the Morenci-Metcalf, the Jerome, the Globe, and Mineral Creek districts. Other districts making important production of copper are the Big Bug and Copper Basin districts of Yavapai County, the Palmetto district of Santa Cruz County, the Pima of Pima County, and the Pioneer district of Pinal County.

The gold production of the State in 1912 was valued at $3,762,201, compared with $3,430,503 in 1911. The output of 1912 was the largest in recent years, and the increase was mainly due to greater production from the gold milling ores of Mohave County, and from the copper ores of Cochise County. In the output of gold, Mohave County again led, producing $1,899,831, or half the total in 1911. Cochise County ranks second, with its largest output from the copper ores of the Warren district.

The silver output of the territory was 3,490,387 fine ounces, compared with 2,276,571 fine ounces in 1911. Of the total output, Cochise County produced 1,962,644 ounces, and Yavapai County 748,872 ounces. Of the total silver production in 1912, copper ores supplied 2,378,593 ounces.

Education. The total school population in 1913 was 46,681. The total enrollment in the public schools was 35,160, and the average daily attendance was 25,003. The number of male teachers employed numbered 149 and the female teachers 871. The average monthly salary of male teachers was $107.92, and the female teachers $83.40. The legislature of Arizona has passed many advanced measures relating to education. These include a teachers' retirement act, under which rewards are made to teachers who have attained the age of 65 years. The first session of the legislature revised the old school laws and enacted many new ones. New high schools were erected in 1912 and 1913 at Winslow, Glendale, Yuma, Bisbee, and Globe. The State university forms a part of the education system.

Transportation. The total railway mileage in the State on July 1, 1913, was 2135. On that date the Southern Pacific Railway had 537 miles of track, the Atchison, Topeka, and Santa Fé (coast line), 408, the Arizona Eastern Railway Company, 375, the Santa Fé, Prescott, and Phoenix lines, 364, and the El Paso and Southwestern system, 183. The remaining mileage is that of smaller local roads. There was a small amount of construction during 1913.

Finance. There was a balance in the treasury on June 30, 1912, of $411,441. The total receipts for the fiscal year ending June 30, 1913, amounted to $3,825,367. The disbursements for the same period amounted to $3,193,352, leaving a balance in the treasury at the end of the fiscal year of $1,073,456. The chief receipts are from taxes of various kinds, and the chief disbursements are for education, State institutions, and for State officers. The county taxes collected in the fiscal year amounted to $1,252,573. The funded debt of the State, which includes county and city indebtedness, funded by the issuance of bonds, amounted to $2,098,302.

Charities and Corrections. The charitable and correctional institutions of the State, with their populations in 1913, are as follows: The State Prison at Florence, 430, the State Industrial School at Fort Grant, 133, the State Hospital for the Insane at Phoenix, 423, the Home for Aged and Infirm Arizona Pioneers at Prescott, 40, the Florence Crittenden Home at Phoenix, 9, the Arizona Children's Home at Phoenix, 15, St. Luke's Home, (a tubercular sanitorium adopted by the Protestant Episcopal Church), Phoenix, 42. During the year a new building for education and recreation was completed for the State prison. The industrial school was removed to Fort Grant, where buildings are being remodeled and some of the land cultivated. Several important measures relating to charities and corrections were passed by the legislature of 1913. Provision was made for a board of pardons and paroles, to replace the present board of commissioners of paroled prisoners.

Politics and Government. The legislature met in 1913, and passed a number of important measures which are noted in the section *Legislation* below. There was no election for State officers during the year. The term of the governor expires on December 31, 1914, and the next State election is on November 3, 1914.

The discussion of the alien land laws in California generally obscured the fact that the legislature of Arizona passed measures much more radical than those which resulted from a compromise in California. The bill passed corresponds closely to those measures which were abandoned in California, which directly prohibited aliens who have not declared their intention of becoming citizens from acquiring land. This bill was passed by the lower house of the legislature on May 5, and was approved by the Senate on May 12, and signed by the governor on May 16. Protests were made against the passage of the bill by the Japanese Association of Arizona. No active measures were taken by the United States government to influence the State legislature against this passage.

On November 4, the Arizona Bank and Trust Company was closed by the State bank examiner.

LEGISLATION. The legislature was in session in 1913 and many important measures were passed. These included acts putting into effect the woman suffrage amendment to the constitution, adopted at the election of November, 1912. This session also passed an inheritance tax law, a pure food law, an alien land law, similar to, but somewhat more stringent than, the California act, an eight-hour law for women, a $.03 fare law, and laws carrying into effect the initiative, referendum, and recall provisions of the constitution.

STATE GOVERNMENT. Governor, Emmett O'Neal; Lieutenant-Governor, W. D. Seed; Secretary of State, Cyrus B. Brown; Auditor, C. B. Smith; Adjutant-General, J. B. Scully; Attorney-General, R. C. Brickell; Treasurer, John Purifoy; Superintendent of Education, W. F. Feagin; Commissioner of Agriculture, R. F. Kolb; ex-officio Commissioner of Insurance, Cyrus B. Brown—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, J. R. Dowdell; Associate Justices, Ormond Somerville, A. D. Sayre, John C. Anderson, Edward de Graffinried, J. J. Mayfield, and Thomas C. McClellan; Clerk, R. F. Ligon—all Democrats.

The State representatives in Congress will be found in the section *Congress*, article UNITED STATES.

ARIZONA, UNIVERSITY OF. A State institution for higher education, founded at Tucson, Ariz., in 1885. The number of students enrolled in all departments of the university in the autumn of 1913 numbered about 200. The faculty numbered about 45. A home economics department was added in 1913. The college received about $9000 for the purchase of mining apparatus. The productive funds amount to about $20,000, and the annual income to about $150,000, of which $100,000 comes from the State and $50,000 from the United States government. The library contains about 18,000 volumes. The president is Arthur H. Wilde, Ph. D.

ARKANSAS. POPULATION. The population of the State in 1913 was 1,659,859, according to the estimates of the Bureau of the United States Census.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only:

		Acreage	Prod. Bu.	Value
Corn	1913	2,475,000	47,025,000	$36,680,000
	1912	2,475,000	50,490,000	33,828,000
Wheat	1913	101,000	1,313,000	1,182,000
	1912	94,000	940,000	884,000
Oats	1913	240,000	6,360,000	3,371.000
	1912	175,000	3,482,000	1,741.000
Rye	1913	1,000	12,000	11.000
	1912	1,000	10,000	10.000
Rice	1913	104,700,000	3,769,000	3,392,000
	1912	90,800	3,405,000	3,201.000
Potatoes ...	1913	25,000	1,800,000	1,800.000
	1912	25,000	1,750,000	1,610.000
Hay	1913	320,000	*a* 384,000	5,184.000
	1912	286,000	352,000	4,224.000
Tobacco	1913	800	*b* 520,000	85.000
	1912	800	520,000	94.000
Cotton	1913	2,210,000	*c* 900,000	49,987.000
	1912	1,991,000	792,000	46,627.000

a Tons. *b* Pounds. *c* Bales.

MINERAL PRODUCTION. The total production of coal in 1912 was 2,100,819 short tons, valued at $3,582,789. This was 5970 tons less than the production of 1911 and was due to the suspension of work on April 1, 1913. The prospect for the advancement of coal mining in the State was not bright. In addition to mining difficulties with which operators have to contend, competition with fuel oil and natural gas from the mid-continent field and with the more cheaply made coals of Alabama, Kentucky, Illinois, and Colorado, has restricted the markets for Arkansas to comparatively narrow limits. The labor market in 1912 was unusually short; the number of men being fewer by 1121 or 20 per cent. than in 1911, 4536, as compared with 5657. According to the United States Bureau of Mines, there were six men killed in the coal mines of the State in 1912. Five of these by falls of roof.

TRANSPORTATION. The railway mileage of the State in 1913 included 4,797.82 miles of main line, and 1364.44 miles of side track. There were ten companies operating electric railways, with a total mileage in the State of 113.72.

EDUCATION. The total school population on June 30, 1913, was 617,265. Of these 435,575 were white and 181,790 were negroes. The total enrollment in the public schools was 429,462, of whom 317,386 were white and 112,076 colored. The average daily attendance was 278,929; in the white schools, 208,490, and in the colored schools, 70,439. The total number of teachers was 10,234, of whom 8207 were white and 2027 were colored. The average annual salary paid teachers was $327.40. The expenditures for public schools during the year was $4,279,478.

FINANCE. The receipts for the fiscal year 1911-12 were $6,899,247, and the expenditures were $6,734,915. There was a balance at the end of the fiscal year of $800,770. The chief source of income of the State is the direct tax on all property. The chief expenditures are for schools and charitable and State institutions. The debt of the State amounts to about $1,250,000.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions in the State include the State Hospital for Nervous Diseases at Little Rock, Deaf Mute Institute at Little Rock, School for the Blind at Little Rock, Confederate Soldiers' Home at Sweet Home, the Arkansas State Penitentiary and State Farm, and the Arkansas Reform School at Little Rock. The charitable institutions are controlled by the board of trustees on charitable institutions, and the correctional institutions by the State penitentiary commissioner.

LEGISLATION. The legislature met in 1913 and the important measures passed include the following: An employers' liability act was extended to all corporations. It was formally applicable to railroad corporations only. A commission form of government was made permissible in cities having population between 18,000 and 40,000. The method of executing the death penalty was changed from hanging to electrocution. A uniform negotiable instruments law was passed. Stringent anti-tipping acts and the severe white slave law was passed. The legislature also enacted a blue-sky law, patterned after the Kansas statute. The right of referendum was extended to municipal corporations. A corrupt practices act was passed. This prevents candidates for Congress, including United States senators, from expending more than the income of their office for one year. Other provisions restricted expenditures in primary elections. The anti-trust law was modified to permit fire insurance companies to join in the employment of a common rate expert. The anti-trust law of 1905 was amended. This law had been construed to prohibit corporations which were members of combinations elsewhere from doing business in the State, even though there were no showing of unfair practices within the State. As a result of this construction many large corporations like the International Harvester Company left the State. The law of 1905 also provided that prosecuting attorneys should receive twenty-five per cent. of the sums collected in the prosecutions. The amendment of 1913 abolished the twenty-five per cent. provision and permitted the attorney-general only to bring suits. It further amended the law to prohibit only acts done within the State, tending to carry into effect a conspiracy, and provided that doing business in a lawful manner within the State shall not be deemed such an act. It is believed that most of the large corporations which withdrew on account of the interpretation of the 1905 act will now return to the State.

POLITICS AND GOVERNMENT. In 1913 Arkansas had five governors, George W. Donaghey, whose term ended January 16; Joe T. Robinson, who was elected governor in September, 1912, and served from January 16 to March 8, when he resigned to take his seat in the United States Senate, to which he had been elected by the legislature; W. K. Oldham, who, as president of the Senate, succeeded Robinson and served from March 8 to March 23; J. M. Futrell, who was elected president of the Senate, succeeded Oldham as acting governor and served from March 23 to August 6; and George W. Hays, who was elected governor at the special election in July and took office August 6. For five days both Oldham and Futrell claimed the governorship. By agreement the disputed question, which was one of constitutioanl interpretation, was submitted to the Supreme Court, which decided in favor of Futrell. In 1913 Arkansas had four United States senators besides Senator James P. Clarke. These were: Jeff Davis, who died on January 2; J. N. Heiskell, editor of the *Arkansas Gazette*, who was appointed by Governor Donaghey and served from January 6 to January 29; W. M. Kavanaugh, who was elected by the legislature for the remainder of the short term and served from January 29 to March 4; and Joe T. Robinson, who was elected on January 30 by the legislature for the term beginning March 4. The State legislature, which met in January, passed what is known as the Going law, which provides that before licenses can be granted for saloons in any municipality a petition must be presented to the county judge signed by a majority of the "adult white inhabitants." This includes white women and excludes negroes. Opponents of the Going law sought to have it taken before a referendum, but the Supreme Court decided that the "emergency clause" attached to the bill by the legislature was valid, the "emergency clause" having the effect of preventing the referendum being invoked against a law. At this time licenses nave been granted on presentation of petitions in Hot Springs, Fort Smith, Helena, Argenta, and some smaller places, and hearings are in progress on petitions in other cities of the State.

STATE GOVERNMENT. Governor, George W. Hays; Lieutenant-Governor, ———— Secretary of State, Earle W. Hodges; Treasurer, John W. Crockett; Auditor and Insurance Commissioner, L. L. Coffmann; Attorney-General, W. L. Moose; Superintendent of Education, Geo. B. Cook; Commissioner of Agriculture, J. H. Page; Commissioner of Public Lands, R. G. Dye —all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Edgar A. McCulloch; Justices, F. G. Smith, C. D. Wood, William F. Kirby, and Jesse C. Hart; Clerk of the Court, P. D. English—all Democrats.

STATE LEGISLATURE, 1913. Democrats: Senate, 33; House, 96; joint ballot, 129. Republicans: Senate, 1; House, 4; joint ballot, 5. Progressives: Senate, 1; joint ballot, 1. Democratic majority: Senate, 31; House, 92; joint ballot, 123.

The representatives in Congress will be found in the article UNITED STATES, section *Congress*.

ARKANSAS. UNIVERSITY OF. A State university for the higher education, founded at Fayetteville, in 1871. The students enrolled in all departments of the university in 1913 numbered 1180. There were 156 members of the faculty. The productive funds amount to about $130,000, and the annual income, most of which is furnished by the State, to about $20,000. The library contains about 25,000 volumes. The president is J. C. Futrall, M. A.

ARMAMENT. See BATTLESHIPS

ARMIES. See MILITARY PROGRESS, and section *Army*, under the various countries.

ARMOR. See BATTLESHIPS.

ARMY INCREASE. See especially BELGIUM, FRANCE, GERMANY, each case under *Army*.

ARROL, SIR WILLIAM. A Scotch engineer, died February 20, 1913. He was born in 1839 at Houston in Renfrewshire. At the age of fourteen he began his apprenticeship in a blacksmith shop, at the same time studying in the evening schools. For five years he was a foreman in the boiler works of Messrs. Laidlaw & Sons, Glasgow, and then engaged in business for himself. His first undertaking was the construction of boilers, to which he soon added steel work, bridges, workshops, etc. He introduced many new and radical methods of construction. He built the Caledonian Railway Bridge in 1875; the Forth Bridge, 1882-1887; the Tay Viaduct, during the building of the Forth Bridge; and the steel work of the Tower Bridge in London, 1886-1894. Many of the bridges over the Manchester Canal are his work.

He secured the contract for the bridge over the Nile at Cairo. These accomplishments, with many others, entitle him to rank as one of the greatest bridge builders of his day. In 1896 he was elected to the House of Commons, and continued in Parliament until 1906, when he retired.

ARROWROCK DAM AND RESERVOIR. See DAMS.

ARSENOFERRITE. See MINERALOGY.

ART. See PAINTING, SCULPTURE, ARCHITECTURE, and MUSIC.

ARTIFICIAL SILK. See CHEMISTRY, INDUSTRIAL.

ARTILLERY. See MILITARY PROGRESS, and section *Army* under UNITED STATES, and under various foreign countries.

ASBESTOS. The production of asbestos in the United States in 1912 was obtained from three States, Georgia, Vermont, and Wyoming. The relative quantity produced is small. In 1912 it was 4403 short tons, valued at $87,959, a considerable decrease over the production of 1911, which was 7604 short tons, valued at $119,955. By far the larger part of the asbestos used in the United States is imported from Canada. In 1912 this amounted to 71,426 tons, valued at $1,441,475. The total value of the imports in asbestos in 1912 was $1,456,012. Asbestos has been found in Arizona in considerable quantities, but difficult access has as yet made its production unprofitable. Vermont is by far the most important producer of chrysolite asbestos. The total output of asbestos in Canada in 1912 was 97,816 tons.

ASHANTI. See GOLD COAST.

ASHBOURNE, EDWARD GIBSON, first baron. A British jurist, died May 28, 1913. He was born in Dublin in 1837; educated at Trinity College; in 1860 admitted to the bar, and in 1877 made a bencher of the King's Inns. In 1874 he stood for Parliament as a Unionist, but was defeated. A year later he was more successful and was returned for Dublin University. He was appointed attorney-general in the cabinet, an office which he held until 1880. On the accession of his party to power in 1885 he was appointed Irish lord chancellor, and shortly afterwards raised to the peerage, with the title of Baron Ashbourne. After the general elections of 1886 and 1895 he resumed his office and reëntered the cabinet.

ASIA. See ANTHROPOLOGY, EXPLORATIONS, and articles on the various Asiatic countries.

ASIA MINOR, EXPLORATIONS IN. See ARCHÆOLOGY.

ASPHALT. The total quantity of asphaltic materials produced in the United States in 1912 was 449,510 short tons, valued at $4,620,731. This included all the varieties of asphalt and also sandstone and limestone impregnated with asphalt. The production in 1911 was 364,266 short tons, valued at $3,991,109. California is the most important producer of asphalt. In 1912 the production in that State was 249,331 tons, valued at $2,180,403. In Texas there were produced 945,532 tons, valued at $1,404,266; in Oklahoma, 65,717 tons, valued at $341,373; and in Utah, 39,930 tons valued at $688,689. The chief increase in 1912 was in oil asphalt in Texas and California. The United States is the largest producer of asphalt and is followed by Trinidad, which in 1912 produced 189,496 tons. It is also produced in Germany, France, Italy, Spain, Austria, Russia, and Venezuela. Exports of asphalt in 1912 were valued at $1,170,882. This includes both manufactured and non-manufactured asphalt.

ASQUITH, HERBERT HENRY. See ENGLAND, *History, passim.*

ASSOCIATION OF AMERICAN UNIVERSITIES. See UNIVERSITIES AND COLLEGES, *American.*

ASSUAM DAM. See DAMS.

ASSYRIOLOGY. See ARCHÆOLOGY.

ASTRONOMICAL SOCIETY OF AMERICA. See ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, AMERICAN.

ASTRONOMY. The year 1913 showed steady progress in observational astronomy and astrophysics. At the conference of the International Union for Solar Research, which was held at Bonn, Germany, from July 30 to August 5, important steps were taken to add to the present efficiency of those departments of solar research in which international coöperation is found to be necessary. No striking discoveries marked the year, but the number of minor planets announced as new showed an increase over the numbers recorded during the past few years, almost reaching the century mark. Westphal's Comet, last seen in 1852, reappeared, and, while its return did not arouse the interest of the general public to the same extent as did Halley's Comet in 1910, it received considerable attention from astronomers. Five other comets were seen, only one of which —Giacobini's—had been recorded previously.

MOUNT WILSON SOLAR OBSERVATORY. Professor Hale, in his report of the work carried on by himself and his associates during 1912 at the Mount Wilson Solar Observatory, called attention to the valuable results obtained from coöperation with distinguished astronomers from other observatories who had found the instrumental facilities afforded by the observatory eminently adapted to the furtherance of their investigations. Among them may be mentioned Professor E. E. Barnard, of the Yerkes Observatory, who made a series of both visual and photographic observations of the planets Mars and Saturn with the 60-inch reflecting telescope; the surface of the former planet showed immense complexity of detail, but he was unable to detect any trace of the system of fine lines drawn by Lowell. Professor Kapteyn of Groningen made an extensive series of observations on the radial velocities of the helium stars of his Star Streams I. and the A stars of his Streams I. and II., and obtained greatly improved data for the positions of the vertices of both streams. Professor Hertzsprung, of the Potsdam Astrophysical Observatory, spent four months at Mount Wilson for the purpose of measuring the effective wave-lengths of faint stars. Professor Carl Störmer, of Christiania, who had for some years devoted himself to a study of the aurora borealis, investigated the theory of the sun's general magnetic field with view to its application to his own and Birkeland's hypotheses as to the nature of the aurora and the form of the coronal streamers.

SUN-SPOTS. In 1908, soon after he had established the existence of intense magnetic fields in the sun-spots, Professor Hale made an attempt to observe the Zeeman effect due to the general magnetic field of the sun, but was not successful in detecting it. With the resumption of his duties as director of the observatory he again took up the problem, which, owing to the absence of sun-spots and other disturbing influences likely to mask the slight effect expected, seemed more hopeful of solution. Comparatively few of the lines selected showed any displacement; those which did, however, suffered displacement of opposite sign in the two hemispheres of the sun, decreasing in magnitude from a maximum near latitude 45° to about zero at the solar equator. Although the results could not be said to be conclusive, they were considered of sufficient importance to warrant the continuance of the investigation. As a guide to further research, Professor Hale proposed the following tentative working hypothesis of sun-spots: As the result of an eruption or some other cause tending to produce rapid convection, a column of gas is projected upward from within the sun toward the surface of the photosphere. As this rises, differences in the velocities of adjacent surfaces give rise to vortex motion, the circulation being vertically upward and then outward along the surface of the photosphere. Owing to expansion, cooling takes place at the centre of the vortex, and the central dark cloud or umbra results. Negative ions now flow in rapidly from the hot gases outside to the cooler gases in the centre, and, partaking of the vortical motion, give rise to a magnetic field. The hydrogen gases in the higher atmosphere of the sun are drawn in toward the pole of the magnet along the lines of force. If the spot is bipolar—and this is the usual form—its polarities are opposite, and the hydrogen flocculi are arranged in lines resembling the lines of force due to a bar magnet. The two poles may be regarded either as the ends of a single vortex of horseshoe shape or of two distinct, straight vortices with their axes coinciding with radii of the sun, and hence nearly parallel. Further study of bipolar groups will be necessary in order to decide between these two hypotheses of the constitution of a bipolar sun-spot.

REFLECTING TELESCOPE. The construction of the 100-inch reflecting telescope was delayed through the unsatisfactory character of the disk supplied from the St. Gobain works. The great difficulty of obtaining a disk of the requisite diameter and thickness free from internal flaws induced Professor Hale to put in hand the grinding of the disk supplied to the observatory some years ago, with the result that it seems probable that it can be used ultimately. The completion of the 150-foot tower telescope and the 75-foot combined spectrograph and spectroheliograph was reported. Both instruments were thoroughly tested and found to be entirely satisfactory.

THE ROTATION OF THE SUN. In the *Astrophysical Journal*, Plaskett and De Lury gave the results of an investigation of the rotation of the sun which they conducted at the Dominion Observatory at Ottawa in 1911. The special region of the spectrum allotted to the Ottawa observers was in the yellow-green at the Solar Research Conference at Mount Wilson in 1910 from λ5500 to λ5700. The values obtained were in substantial agreement with those published previously by Duner and Adams, the linear velocity at the solar equator being 1.536 kilometers per second.

RADIAL MOTION IN SUN-SPOTS. St. John, in the *Astrophysical Journal*, discussed the distribution of the elements in the solar atmosphere. The relative levels of the lines of 26 elements were determined by comparing their displacements with those of the lines of iron of equal intensity and in the same spectral region. A striking resemblance to the state of the terrestrial atmosphere was found. In the lower solar atmosphere, the region including the lowest levels of the reversing layer and especially the underlying gases, is the region of tremendous disturbance. Storms and convection currents tend to keep the composition sensibly uniform, and the elements present are neodymium, barium, lanthanum, lead, cadmium, ytterbium, niobium, and cerium. The motion is outward from the centre of the sun-spot vortex, and is greater the lower the level at which it takes place. Above this turbulent region is the general reversing layer, a region in which there is more stable equilibrium with a preponderance of inward motion, and in which sodium, magnesium, aluminum, and iron are present. From this region the chromosphere is quite sharply differentiated both in its composition and the movements of the constituent gases in the neighborhood of the sun-spots. The motion is inward toward the core of the vortex and increases as the surface is approached, while the gases involved are hydrogen and those forms of gaseous calcium which give rise to the H and K lines. It was suggested that possibly the study of solar storms which are viewed from above might afford some help in understanding the circumstances attending terrestrial storms which are viewed from below.

INTERNATIONAL UNION FOR COÖPERATION IN SOLAR RESEARCH. The fifth congress of this body met at Bonn from July 30 to August 5, and was attended by about a hundred delegates from Europe and America. A number of important resolutions tending toward the unification and systematization of the work to be accomplished by international coöperation were adopted on the recommendation of the various committees. Among them may be mentioned the precise specification of the length of the arc, the part of the arc, and the strength of current to be used in the determination of standards of wave length; the provisional use of the Harvard modification of the Draper system in the classification of stellar spectra; and the continuance of systematic visual observations on the umbral spectrum for at least another three years so as to complete a sun-spot cycle. In view of the systematic differences to be found in the value of the solar rotation obtained by different observers, the committee on determination of the solar rotation recommended that the programme laid down in 1910 should be temporarily abandoned, and that work in this field should be concentrated on a search for the sources of error; for this purpose it was recommended that determination of the velocity at solar equator should be made by as many different methods as possible. The committee on work with the spectroheliograph was reorganized as the committee on solar atmosphere so as to include and unify all the observations on the solar atmosphere visual and photographic, except those associated with eclipses. The committee was further divided into two subcommittees, one of which will confine its attention to the visual observation of prominences and related phenomena, while the other will concern itself with the photography of the forms and the determination of the velocities manifested in the solar atmosphere both of the disk and limb.

Solar Constant. In the annals of the Astrophysical Observatory of the Smithsonian Institution, Abbot published an exhaustive account of the investigations undertaken by himself and Fowle between 1902 and 1913. Observations were conducted at four stations, namely, at Washington, from 1902 to 1913; at Mount Wilson, California, from 1905 to 1912; at Mount Whitney, during 1909-10; and at Bassour, Algeria, during 1911-12. The altitudes of the stations ranged from thirty-one feet above sea-level at Washington to 14,500 feet on Mount Whitney. It was found that the effective radiating layer of the sun is roughly comparable with a black body at 6000° abs. C.; in general, however, the prevailing solar radiating temperatures were greatly in excess of 6000°, and at times even exceeded 7000° abs. C. The investigation proved conclusively that the solar radiation is subject to a variation of irregular period and amplitude, the period being from a week to ten days, while the variation in amplitude is small, not exceeding seven per cent. as a rule. Besides this short period variability of the sun, there were indications of an intimate relation between the intensity of the solar radiation and the sun-spot frequency. An increase in the number of sun-spots is accompanied by an increase in the radiation intensity, but further investigation is needed to establish the exact relation. The mean value of the solar constant deduced for the epoch 1902-13 is 1.932 calories (15°C.) per sq. cm. per minute.

The Albedo of the Earth. In the *Astronomische Nachrichten,* Very published the results of his investigation of the earth's albedo, that is, the ratio of the light reflected from the earth to the light received. A comparison of the earth shine on the moon and the light from similar sun-illuminated areas on the lunar surface was made by visual photometric methods. It was found that the ratio of moonlight to earth shine was 2497 to 1, and from this it was estimated that the albedo of the earth is .89, or practically the same as the albedo of Saturn, as estimated by Muller.

Stellar Temperatures. Two independent researches on the effective temperatures of the stars were reported by Rosenberg and Nordmann. The determinations of the former were based on the intensity of the photographic spectrum, while the latter derived his results from observations on the visual rays with the aid of his heterochromatic photometer. The following table shows the temperatures in a number of cases where the same star was measured:

Star	Effective temperature in degrees absolute		Lockyer's spectral type
	Nordmann	Rosenberg	
δ Persei	18,500	15,500	Algol
Algol	13,300	12,000	Algol
Vega	12,200	22,000	Sirius
α Persei	8,300	6,500	Polaris
Procyon	6,800	7,000	Procyon
Polaris	8,200	5,200	Polaris
γ Cygni	5,620	5,100	Polaris
Sun	5,320	4,950	Arcturus
Capella	4,720	4,500	Arcturus
β Andromedæ	3,700	2,650	Antares
Aldebaran	3,500	2,150	Aldebaran

Except in the case of Vega, the agreement may be considered fairly good. The great difference in the estimated temperatures of this star may perhaps be attributed to selective absorption in its atmosphere. In general, it may be said that the figures obtained by both investigators confirm Lockyer's thermal classification, the temperature increasing as we ascend from the red stars of the classes typified by Aldebaran and Antares to the white Sirian and Algolian stars.

The Structure of the Universe. Professor Kapteyn delivered an address before the National Academy of Sciences in which he summarized the most modern views on this subject. Taking for convenience a modified form of Secchi's classification of the stars into four spectral classes, in which the fourth type is neglected on account of the paucity of its representatives while the helium stars are removed to form a separate group, he argued that there was much evidence to show that the classification is a natural one, that is, it gives the order in which the stars have been evolved. The youngest or helium stars constitute the first stage of development from primordial matter. Passing from type to type in Secchi's order, we arrive at older and older stars. Stars now of the first type were formerly helium stars, and at some remote period in the past must have been evolved from some primordial matter, which was probably in the form of nebulous matter possessing little internal motion. Hence groups like the Hyades and Ursa Major must at one time have been full of nebulæ, although there are no traces of such formations now. The absence of helium stars from Kapteyn's second stream, or cloud, of stars is therefore due to the exhaustion of nebulous matter in the cloud, whereas his first stream, which is rich in such stars, has not yet been exhausted of its nebulous matter, or, if so, only at a very recent period.

A New Class of Variable Star. Many explanations have been offered to account for the fluctuations in brightness which are observed in variable stars. In the case of non-periodic variables, we have in a very few cases a slight but continuous diminuition in brightness which is probably due to the slow but steady cooling of the star; or there may be irregular variability, so that the star flashes forth from time to time at irregular intervals. For the latter phenomenon no satisfactory explanation has been found. In the case of periodic variables, however, it has been possible to classify them into long and short period variables. The type of the first class is that star in the constellation of the Whale, which was the first variable to be recognized as such, and to which Hevelius gave the name Mira, or "The Wonderful." Its brightness shows a steady increase followed by a diminution, the cycle of change extending over a somewhat irregular period of about eleven months. The periods of stars of this type vary from a couple of months to about two years, but the majority resemble Mira in having periods of about a year. Their light changes, when plotted on a chart, give curves resembling those showing sun-spot frequency to such an extent that it is not surprising that astronomers have considered that in these stars there occurs a development of spots which is quite analogous to that which takes place in the sun. It is found that the maxima and minima of light intensity correspond to the maxima and minima of spot numbers, so that it cannot be that the spots cut off the light by diminishing the luminous surface of the star, as was once thought to be the case, but rather that, as in the sun, the occurrence of the spots is associated with a great increase of energy which is made evident by the increase of luminosity. The other class, namely, that of the short period variables, is divided into two groups, typified by Algol and β Lyræ. In these two groups just referred to the variations of luminosity are explained by the presence of two stars in revolution about each other, in such a way that periodical eclipse takes place. In the Algol type, one of the stars is luminous, and the other dark, so that when the dark star is passing in front of the luminous one, there is a brief period during which a diminution of luminosity occurs. In the other type—the β Lyræ type above mentioned—both stars are luminous, but as a rule they are not equally so.

Still another type of periodic variable has recently come to light. Observations made at Princeton during the past two years showed that the light changes of S Antilæ, SZ Tauri, and RU Camelopardalis could be most satisfactorily explained on the hypothesis that they are isolated rotating ellipsoids, and not binary systems. Shapley, in a discussion of a large number of photometric measurements on the third of these stars, arrived at the conclusion that its light variations could be accounted for by supposing it to be a single uniformly illuminated ellipsoidal body rotating in a period of 44,344 days. The discussion of the results for the two other stars is promised and will be awaited with interest.

Present Magnitudes of Novæ. Professor Barnard reported his observations on the present magnitudes of many of the "novæ" or temporary stars which have blazed forth during the heavens during the past half century. The constellations in which the stars appeared, and the present magnitude of the stars are given in the subjoinea table:

Constellation	Discoverer	Date of disc'y	Present magnitude
Corona borealis	Birmingham	1866	9.4
Cygnus	Schmidt	1876	15.0
Andromeda	Hartwig	1885	invisible
Auriga	Anderson	1891	14.0
Sagittarius	Mrs. Fleming	1898	15.0
Perseus	Anderson	1901	12.4
Gemini	Turner	1903	16.0
Aquila	Mrs. Fleming	1905	invisible
Lacerta	Espin	1910	12 5
Gemini	Enebo	1912	8.8

It will be noticed that most of them are now beyond the power of all but the most powerful telescopes, while Nova Andromedæ and Nova Aquilæ have dwindled until they are of less than the 17th magnitude. The celebrated Nova in Cassiopeia, the appearance of which startled Tycho Brahe in 1592, was also under observation, and was found to be slightly fainter than a star of the eighth magnitude.

Minor Planets. The number of minor planets announced as new each year for the past three years has been comparatively small, but in 1913 it again approached the century mark. Since the issue of the Year Book for 1912, ninety-two of these bodies had been reported, and have received provisional designations ranging from 1913 QC to 1913 TQ, with 1906 WF and WF. The last two were detected on the reëxamination of some old negatives taken by Kopff at Heidelberg in 1906. The ten planets designated by the letters QC to QM belong strictly to 1912, but were not reported until well into 1913. Six, reported from Heidelberg, were identified more or less completely with bodies previously known; these are QN, doubtfully identified with 396 (Æolia); QO, with 1908 CF; QF, with 584 (1906 SY); QQ, doubtfully with 496 (Gryhia); QV, with 1908 CA; and RA, with 14 (Irene). In addition, QT, reported from Winchester, Mass., proved to be identical with 1909 GU; and two, RF and RM, discovered at Simëis have been identified, the former with 1910 KO, the latter with 1907 AZ and 1909 GG. The total number of minor planets discovered in 1913, and not yet identified with bodies already known, is therefore 82. As usual, the lion's share falls to the observers of the Königstuhl Observatory at Heidelberg, where 23 were found; of these, 17 were discovered by Kaiser, and two each by Wolf, Kopff, and Massinger. This number is followed closely by the twenty-two reported from Winchester, Mass., by the Rev. Joel Metcalf, his total being the largest credited to a single individual during the year. The increased activity in the search for minor planets displayed at the Simëis Observatory resulted in the discovery of 17, of which 13 were found by Neujmin and 4 by Neujmin and Mme. Beliawsky jointly. Of the remaining 20, 9 were discovered by Arndt at Neuchatel, 6 by Wood at Johannisberg, 4 at Vienna (3 by Rheden and 1 by Palisa), and one by Pokrowski at Dorpat.

Permanent numbers were assigned to the following minor planets for which definitive elements have been computed:

Number	Temporary designation	Discoverer	Date of discovery
733	PF	Wolf	1912—Sept. 16
734	PH	Palisa	Oct. 11
735	PY	Vogt	Dec. 9
736	PZ	Metcalf	Nov. 16
737	QB	Metcalf	Dec. 7
738	QO	Kaiser	1913—Jan. 7
739	QR	Metcalf	Feb. 7
740	QS	Metcalf	Feb. 10
741	QT	Metcalf	Feb. 10
742	QU	Kaiser	Feb. 23
743	QV	Kaiser	Feb. 25
744	QW	Rheden	Feb. 26
745	QX	Kaiser	March 1
746	QY	Kaiser	March 1
747	QZ	Metcalf	March 7
748	RD	Neujmin	March 14
749	RF	Neujmin	April 5
750	RG	Palisa	April 28
751	RK	Neujmin	April 28
752	RL	Neujmin	April 30
753	RM	Neujmin	April 30
754	UT	Kopff	1906—Aug. 22

In a communication to the *Astronomische Nachrichten*, Dr. Fritz Cohn called attention to the inconvenience and the possibility of confusion connected with the literal designation of the minor planets, and suggested the advisability of naming as many as possible. He therefore submitted a list of feminine names, chosen mainly from mythology and history, to the discoverers, and, with their approval, published a set of names for all the previously unnamed planets from 570 (1905 QX) to 727 (1912 NT). The names assigned show a striking catholicity of taste, and, in some cases, obvious appropriateness; for example, 697 is named Galilea on account of its having been discovered on the 300th anniversary of Galileo's discovery of the satelites of Jupiter, and in the name Melitta assigned to 676, one is inclined to suspect a play on the name of the discoverer, Melotte. In another paper, Dr. Cohn emphasized the necessity of more systematic observation of newly discovered planets, and increased coöperation in such work. Some are observed repeatedly at opposition after opposition, but many discovered at the more remote observatories fail to receive attention, and consequently there is delay in obtaining the necessary data for the computation of their orbits.

COMETS. The periodic comets due to return in 1913 were Westphal's (1852 IV.), Finlay's (1886 VII.), Holmes's (1892 III.), Swift's (1894 IV.), and Kopff's (1906 IV). Of these, Westphal's only was discovered. It was first detected by Delavan at the La Plata (Argentina) Observatory on Sepember 26. It is the fourth member of the group of long period comets associated with the planet Neptune to be observed at a second appearance, the others being the comets of Halley, Pons, and Olbers. Westphal's comet has a shorter period—61.12 years—than any other member of the group; its last perihelion passage occurred on October 12, 1852. When first seen at this apparition, it was of the tenth magnitude, and had a distinct nucleus and a broad tail about 4° long. It gained slightly in brightness at first, but never became a naked-eye object. It passed through perihelion on November 26.

Finlay's comet, discovered at the Cape of Good Hope in 1886, was due at perihelion on March 24, but as it passed very close to Jupiter during the summer of 1910, it was expected that its period would be shortened so as to bring it to perihelion about six weeks earlier. As it would have been behind the sun at that time, it may have failed of detection on account of its unfavorable position. It was observed in 1893 and 1906.

Holmes's comet, with a period of 6.86 years, was due to return to perihelion in January, but it was not favorably placed for observation and escaped detection, although it has been seen at each return since its discovery in 1892.

Besides Westphal's comet, another periodic—Giacobini's (1900 III.)—reappeared. It was discovered by Zinner on October 23. For some as yet undiscovered reason, it was six months ahead of time, so that its period, originally estimated at 6.76 years, has apparently been shortened to 6.44 years. It passed through perihelion on November 2. Since the last issue of the YEAR BOOK, five other comets have been reported. These are:

1912 d, discovered on December 31, 1912, by Lowe at Laura, South Australia. Owing to delay in announcing its discovery, and an error in its position, as originally given, it could not be found again, and no data were available for the computation of its orbit.

1913 a, discovered by Schaumasse at Nice on May 6. It passed through perihelion on May 15.

1913 b, discovered by Metcalf at South Hero, Vermont, on September 1. It was a faint object of about the tenth magnitude, and was thought at first to be Westphal's comet, as it was situated very near the place where that comet was expected.

1913 c, discovered by Neujmin at Simëis on September 3, had a stellar nucleus, and was at first thought to be a minor planet. Its envelope underwent a series of curious changes, alternating between visibility and invisibility. Early in October, the comet could no longer be found. It passed through perihelion on September 23. Its orbit was found to be elliptical, with a period of about nine years.

1913 f, discovered by Delavan at La Plata on December 17. It should pass through perihelion on March 2, 1914.

STANDARD TIME. Brazil has now adopted standard time. For this purpose, the country is divided into four zones, in the most easterly of which the legal time will be reckoned two hours slow on Greenwich. This zone includes the islands of Fernando Noronha and Trinidad (Brazilian). The second zone includes the eastern portion of the mainland, and extends to the River Xingu, which, coinciding roughly with the meridian of 52½° west of Greenwich, forms its western boundary. The third zone takes in the western half of Brazil with the exception of the extreme western portion of the state of Amazonas, the territory of Acre, and the other territory ceded by Bolivia under the terms of the treaty of Petropolis which was signed in 1903.

OTHER EVENTS. The Bruce medal of the Astronomical Society of the Pacific was awarded to Professor J. C. Kapteyn of Groningen, in recognition of his services to astronomy in the study of the proper motions of the stars. The Canadian government made the necessary appropriation for the establishment of an observatory, which, it is expected, will be located at some place in the Canadian Rockies. The observatory is to be equipped with a 75-inch reflecting telescope, which will be second only in size to the 100-inch instrument now in process of construction for the Mount Wilson Solar Observatory.

BOOKS. Among the more important works on Astronomy published in 1913 may be mentioned: Campbell, *Stella Motions* (New Haven); Heath, *Aristarchus of Samos, The Ancient Copernicus* (Oxford); Jacoby, *Astronomy* (New York).

ASTROPHYSICAL SOCIETY OF AMERICA. See ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, AMERICAN.

ASTROPHYSICS. See ASTRONOMY, *passim.*

ATHENS. EXCAVATIONS IN. See ARCHÆOLOGY.

ATHLETICS, TRACK AND FIELD. The year 1913 was a memorable one in athletics. The Olympic games of 1912 had served to stimulate a world-wide interest in track and field events, and countries which had never before paid much attention to these branches of sport began the development of teams to represent them in the Olympic meet to be held in Berlin in 1916.

In the United States eight names stand out prominently. John Paul Jones, the Cornell runner, wound up his remarkable career as an athlete by lowering his world's record time for the mile to 4 minutes 14⅖ seconds in the Harvard stadium. Hannes Kolehmainen, the Finn, who had distinguished himself in the Olympic games and who now represents the Irish-American A. C. of New York, broke every American outdoor record from 3½ up to 10 miles in the ten-mile championship run of the A. A. U., J. L. Wendell of Wesleyan University equaled the world's record of 23⅗ seconds for the 220-yard dash low hurdles in the Harvard Stadium. J. E. Meredith of the University of Pennsylvania broke the 600-yard run indoors by covering the distance in 1 minute 13⅘ seconds. F. W. Kelly, of the University of Southern California, equalled the world's record of 15⅕ seconds for the 120-yard high hurdles, held by A. B. Shaw. Patrick Ryan of the Irish-American A. C. established two new marks with the hammer. He threw the sixteen-pound hammer 189 feet 3 inches, and the twelve-pound hammer 213 feet 9⅛ inches. Leo Gehring of the Mohawk A. C., New York, set a new record for the standing high jump—5 feet 5¾ inches. A. R. Kiviat ran the mile indoors in 4 minutes 18⅕ seconds.

The senior championships of the A. A. U. were held at Chicago, July 5, the Irish-American A. C. winning for the fourth successive year with a total of 44 points. The Chicago A. A. was second with 27 points. Other teams entered and their scores were: Boston A. A., 21; New York A. C., 18; Illinois A. C., 13; Missouri A. C., 11; Springfield High School, 10; University of Southern California, 8; Mohawk A. C., 5; unattached, 2; Kansas City A. C., 2; Long Island A. C., 1. In the junior championships the Chicago A. A. was victor, its score being 42. The Irish-American A. C. was second with 22 points, and the New York A. C. third with 19 points. The all-round championship was won by F. C. Thompson of Princeton University with 7418½ points. Thompson, earlier in the year, made a new world's record in this event, scoring a total of 7499 points. The senior indoor championships were won by the Irish-American A. C. (30), with the New York A. C. (25) second, and the Boston A. A. (13) third. In the junior events the Irish-American A. C. (22) finished first, the New York A. C. (20) second, and the Long Island A. C. (8) third.

The thirty-eighth annual track and field meet of the I. C. A. A. A. was held in the Harvard Stadium at Cambridge, Mass., May 30-31. John Paul Jones of Cornell was the only athlete to create a new record—4 minutes 14⅖ seconds for the mile. The University of Pennsylvania won the championship, scoring a total of 24 points. Harvard was a close second with 21½ points. The standing of the other colleges was: University of Michigan, 19; Cornell, 17½; Dartmouth, 14½; Yale, 10½; California, 10; Wesleyan, 10; Princeton, 6; Columbia, 4; Brown, 3; Pennsylvania State, 1.

The University of Illinois won the annual games of the conference colleges of the West held at Madison, Wis., June 6-7, scoring 47½ points. The University of Wisconsin finished second with 28½ points, and the University of Chicago third with 17½ points. California, the 1912 winner, was fourth with 15 points. Other scores were: Missouri, 14½; Northwestern, 9½; Minnesota, 8; Purdue, 8; Ohio State, 4; Iowa, 3½; Kansas, 3; Notre Dame 2.

In the New England intercollegiate championships held at Cambridge, Mass., May 24, Dartmouth won for the second successive year, scoring 20 points. The New York intercollegiate championships were won by Colgate with 69½ points. The more important dual college meets resulted as follows: Yale 56, Harvard 48; Yale 60½, Princeton 56½; Princeton 79½, Columbia 37½; Harvard 63, Cornell 54; Michigan 55½, Syracuse 21½; and Michigan 80, Syracuse 42; Southern California 62, Stanford 60; Southern California 67, California 55; Missouri 88, Minnesota 20½; Johns Hopkins 60, Naval Academy 28; Pennsylvania 64, Virginia 35; Stanford 61⅕, California 60⅘; Wisconsin 93, Ohio State 33; Rutgers 64, Swarthmore 48; Haverford 64½, New York University 39½; Williams 64, Wesleyan 62; Cornell 85, Michigan 32; Maine 71, Trinity 55; U. S. Naval Academy 76, Dickinson 9; Syracuse 80½, Brown 36½; Lehigh 72½, Bucknell 38½; Rutgers 72, New York University 33; Brown 68, Wesleyan 58; Dartmouth 70½, Pennsylvania 46½; Amherst 76⅔, Williams 49⅓; Bowdoin 74, Trinity 52; Bates 68, Maine 58; Illinois 86, Purdue 31; Swarthmore 67½, Lafayette 44½; Lehigh 71½, Haverford 39½; Chicago 74, Northwestern 52; U. S. Naval Academy 57⅘, Georgetown 27⅕; Notre Dame 96, Northwestern 30; Purdue 87, Indiana 30; Missouri 62, Kansas 47; Union 61, Hamilton 56; Lehigh 72, Swarthmore 40; Illinois 78½, Chicago 47½; Wisconsin 108, Minnesota 18; Andover 40, Exeter 40.

The English championships were held at Stamford Bridge, London, July 4. W. R. Applegate made the best individual showing, winning both the 100 and the 220-yard dashes. A team of Swedish athletes competed, capturing several events. The Oxford-Cambridge dual meeting resulted in a tie, each college scoring five firsts.

ATLANTIC COASTAL WATERWAY. See CANALS.

ATLANTIC FLEET. See UNITED STATES NAVY.

AUCKLAND ISLANDS. A dependency of New Zealand (q.v.)

AUGUSTE, TANCREDE. President of Haiti, died May 3, 1913. He succeeded Cincinnatus Leconte as president of the republic on August 9, 1912. See HAITI.

AUSTIN, ALFRED. The British poet laureate, died June 2, 1913. He was born at Headingley, Leeds, in 1835. His father was a merchant. Educated at Stonyhurst and at London University, he graduated from the latter institution in 1853; then studied law, and in 1857 became a barrister of the Inner Temple. On the death of his father in 1861 he gave up the law and devoted himself to foreign travel and to literary work. His first published book of verse, *The Seasons: a Satire*, appeared in 1861, and was followed, between that date and 1902, by other poetical works, including *The Golden Age*; *Interludes*; *Madonna's Child*; *The Tower of Babel; The Human Tragedy; Savoranola; Lyrical Poems; Narrative Poems; Prince Lucifer; Alfred the Great; England's Darling; A Tale of True Love* (1902); *Flodden Field* (1903); *The Door of Humility* (1906); *Sacred and Profane Love* (1908); and *Love Poems* (1911). Mr. Austin's poetry except in rare instances had never risen much above mediocrity and his appointment as poet laureate by Queen Victoria in 1896 created not a little surprise and considerable amusement. He was handicapped from the beginning by the fact that Lord Tennyson had been his predecessor in the post. It was generally considered that either Swinburne or Kipling was far better fitted for poet laureate than Austin. He industriously performed the duties of his office and undertook the task of writing odes suggested by imperial incidents, the winning of a battle, the death and succession of a ruler, and other events of national interest. Although his poems breathed a spirit of patriotism, they were not considered to rank high as poetry.

He was critic as well as poet, and in his *Poetry of the Period* (1870) was extremely severe on Swinburne, Tennyson, William Morris, Matthew Arnold, and Browning. He went so far as to declare that in his opinion Tennyson would not even be at the head of the poets of the third rank. He wrote much for the *Standard* and the *Quarterly Review*. The former he represented as a special correspondent at the sittings of the Ecumenical Council at the Vatican, and at the headquarters of the king of Prussia in the Franco-Prussian War. In 1883, with W. J. Courthope, he founded the *National Review*, which he continued to publish until 1893. Among his prose works are: *The Garden That I Love; In Veronica's Garden; Lamia's Winter Quarters; Spring and Autumn in Ireland* (1900); *Haunts of Ancient Peace* (1902); *A Lesson in Harmony* (1904); *The Bridling of Pegasus* (1910); and *Autobiography* (1911).

AUSTRALIA, COMMONWEALTH OF. A self-governing dominion of the United Kingdom, from January 1, 1901. It consists of the states of New South Wales, Victoria, Queensland, South Australia, Western Australia, and Tasmania, and the Northern Territory, and the Federal Capital Territory. The temporary seat of the federal government is Melbourne, capital of Victoria. The permanent capital (see ARCHITECTURE) will be Canberra, founded in 1913, in the Federal Capital Territory, which lies within the state of New South Wales.

AREA AND POPULATION. The estimated area and the population according to the census of March 31, 1901, and April 3, 1911, are as follows:

	Sq. m.	Pop. '01	Pop. '11
New South Wales...	309,460	*1,354,846	1,646,734
Victoria	87,884	1,201,070	1,315,551
Queensland	670,500	498,129	605,813
South Australia.....	380,070	358,346	408,558
Western Australia...	975,920	184,124	282,114
Tasmania	26,215	172,475	191,211
Northern Territory..	523,620	4,811	3,310
Federal Capital Ter.	912	....	1,714
Commonwealth	2,974,581	3,773,801	4,455,005

* Including population of the present Federal Capital Territory.

The Australian census returns do not include full-blooded aborigines. However, the full-blooded aborigines regarded as civilized or semi-civilized, that is, those who were in the employ of whites or were living in contiguity to the settlements of whites, were enumerated, numbering in 1911, 19,939. The total number of aborigines is unknown. It has been generally supposed that there are about 150,000, but this figure now appears to be excessive. In his 1910 report the Queensland chief protector of aborigines estimates the total at 74,753, distributed as follows: New South Wales, 6897; Victoria, 256; Queensland, 20,000; South Australia (including the Northern Territory), 20.600; Western Australia, 27,000. A somewhat similar estimate, made by a former chief protector of aborigines in Queensland, gave Queensland at least 18,000, Western Australia at least 24,000, and the Northern Territory from 20,000 to 22,000. In view of these figures it would appear that the number of aborigines is not more than 100,000.

The 1911 census returned 2,313,035 males and 2,141,970 females, or 107.99 males per 100 females. Classification by occupation in 1911: Professional, 144,611; domestic, 201,366; commercial, 286,687; transport and communication, 157,391; industrial, 562,337; primary producers, 586,148; indefinite (of independent means), 23,055; dependents, 2,449,986 (including 2,441,047 dependent on natural guardians, 8587 supported by voluntary and state contributions, and 352 criminals under legal detention); unspecified, 43,424.

A feature of the distribution of population in Australia is the excessive tendency to accumulate in towns, especially the capital cities. In 1911 the population of Sydney, N. S. W., and its suburbs that is, approximately the area within a ten-mile radius) was 629,503, or 38.19 per cent. of the total population of the state; Melbourne, Vict., 588,971, or 44.82 per cent.; Brisbane, Qld., 139,480 or 23.03 per cent.; Adelaide, S. Aust., 189,646, or 46.06 per cent.; Perth, W. Aust.; 106,792, or 37.86 per cent.; Hobart, Tas., 39,937, or 20.87 per cent. Thus the total metropolitan population was 1,694,329, or 38.05 per cent. of the population of the commonwealth. The total increase from 1901 to 1911 was 681,204 (18.05 per cent.), of which the metropolitan increase was 357,751 and the increase in the rest of the country 323,453; and most of the increase shown by the latter figure was in towns rather than rural districts. Many rural counties showed a decrease from 1901 to 1911.

Figures for the population of Australian towns and cities are confusing, because they often relate to different areas. A population figure may include the inhabitants of the town proper and of its suburbs, persons living within a ten-mile or sometimes a five-mile radius; it may relate to the "locality," in which case no clearly defined boundaries exist and the population given represents the number of persons who returned themselves as belonging to that locality; again, it may relate to the "local government area," or the district incorporated for municipal purposes and variously known in the several states as city, town, borough, municipality, and corporation. Thus, according to the census of 1911, the population of Sydney with suburbs was 629,503; the "locality" Sydney, 107,133; "the local government area" (city) Sydney, 112,021. The following figures show for other large places the 1911 population by locality and local government area respectively: Melbourne, Vict., 36,293 and 103,593; Melbourne South, Vict., 46,016 and 46,190; Ballarat, Vict., 38,686 and 22,017; Richmond, Vict., 38,559 and 40,442; Fitzroy, Vict., 34,141 and 34,283; Sydney North, N. S. W., 32,764 and 34,646; Adelaide, S. A., 32,981; Brunswick, Vict., 32,201 and 32,215; Balmain, N. S. W., 31,961 and 32,038; Perth, W. A., 31,300 and 35,767; Broken Hill, N. S. W., 30,953 and 30,972; Hobart, Tas., 27,550 and 27,526; Carlton, Vict., 27,476, not a local government area; Newtown, N. S. W., 26,427 and 26,498; Marrickville, N. S. W., 25,993 and 30,653; Prahran, Vict., 25,489 and 45,367; St. Kilda, Vict., 25,449 and 25,334; Redfern, N. S. W., 24,275 and 24,427; Hawthorn, Vict., 24,353 and 24,450; Paddington, N. S. W., 24,150 and 24,317; Leichhardt, N. S. W., 24,139; Footscray, Vict., 21,933 and 24,254; Geelong, Vict., 21,630 and 13,618; Glebe, N. S. W., 21,444 and 21,943; Brisbane South, 21,332 and 34, 478; Launceston, 20,937 and 20,754; Petersham, N. S. W., 20,407 and 21,712; Collingwood, Vict., 20,254 and 34,190; Waverly, N. S. W., 18,961 and 19,831; Bendigo, Vict., 17,883 and 28,539; Melbourne North, Vict., 17,750, not a local government area; Brisbane, Qld., 17,715 and 35,491; Northcote, Vict., 17,491 and 17,519; Toowoomba, Qld., 16,161 and 13,119; Randwick, N. S. W., 15,793 and 19,463; Rockhampton, Qld., 15,451 and 15,456; Malvern, Vict., 15,319 and 15,969; Charters Towers, Qld., 15,037 and 4262; Townsville, Qld., 13,678 and 10,636; Kalgoorlie, W. A., 13,488 and 12,061; Port Melbourne, Vict., 13,471 and 13,515; Boulder, W. A., 12,833 and 10,824; Woollahra, N. S. W., 12,816 and 16,989.

The increase of population in Australia has been far more due to excess of births over deaths than to immigration. In the period 1861-1911, the excess of arrivals over departures was 876,099, while the excess of births over deaths was 2,547,023; that is, 25.59 per cent. of the gain in population was due to net immigration and 74.41 per cent. to natural increase. Net immigration in 1911 was 69,300; in 1912, 83,741 (166,958 arrivals and 83,217 departures), of whom 48,050 were credited to New South Wales, 22,252 to Victoria, and 6594 to Western Australia. Excess of births over deaths in 1911 was 74,324; in 1912, 80,911. The birth rate per thousand in 1912 was 28.65; marriage rate (rate of marriages, not persons married), 9.07; death rate, 11.23. The percentage of illegitimate to total births in 1910 was 5.75 and in 1911, 5.79. Estimated population (exclusive of full-blooded aborigines) December 31, 1911, 4,568,707; December 31, 1912, 4,733,359. The latter figure was composed as follows: New South Wales, 1,777,534; Victoria, 1,380,561; Queensland, 636,425; South Australia, 430,090; Western Australia, 306,129; Tasmania, 197,205; Northern Territory, 3475; Federal Capital Territory, 1940.

The Northern Territory, under the jurisdiction of South Australia from 1863, was transferred to the commonwealth January 1, 1911. In 1905 the commonwealth assumed the administration of Papua (q.v.). The Federal Capital Territory, including a small area at Jervis Bay, was taken over by the commonwealth from New South Wales, January 1. 1911. The site for the new federal capital is 204 miles distant from Sydney, 429 from Melbourne, 912 from Adelaide, and 929 from Brisbane. In 1912 the design for the laying out of the capital city was approved, and in 1913 the survey and other operations, including roads and engineering works, was being carried forward. A survey for the federal railway between Jervis Bay and the capital was in progress. On March 12, 1913, the official ceremony to mark the initiation of operations in connection with the establishment of the seat of government was carried out. Foundation stones were laid by the governor-general, the prime minister, and the minister for home affairs. At the ceremony the selection of *Canberra* as the name of the capital city was announced by Lady Denman, wife of the governor-general.

Education. According to the 1911 census, persons able to read and write English numbered 3,650,030; read only, 15,009; read and write a foreign language only, 26,210; read only, 2647; not stated, 95,727; unable to read, 665,382. Of the latter number, 525,633 were under five years of age and 76,300 from five to nine years. Of persons aged twenty and upwards only about 2¼ per cent. were unable to read. In respect of children six to thirteen years of age, the census returned the number being educated at state schools (primary and secondary inclusive) as 496,163 (257,609 male, 238,554 female); at private schools, 106,663 (48,583 and 58,080); at home, 17,151 (7720 and 9431); number recorded as "scholar," but class of school not stated, 15,708 (7917 and 7791); number not indicated as receiving instruction, 64,426 (31,669 and 32,757); total, 700,111 (353,498 and 346,613). Public instruction is under control of the states. Primary instruction is free and compulsory. The following statistics for the total commonwealth and the several states relate to 1911:

	Cmlth.	N. S. W.	Vic.
State schools........	8,033	3,125	2,061
State teachers.......	16,971	5,980	5,155
Enrollment	638,850	223,603	204,086
Average attendance.	463,799	160,776	146,464
Expenditure:			
Maintenance	£2,706,028	£1,048,584	£834,276
Buildings	£ 457,730	£ 176,194	£117,048
Private schools......	1,898	756	587
Private teachers....	7,800	3,659	1,975
Enrollment	160,794	60,963	55,893
Average attendance.	132,588	51,569	45,000

	Qld.	S. Aust.	W. Aust.	Tas.
State schools..	1,232	736	495	381
State teachers.	2,738	1,241	1,043	816
Enrollment	91,624	55,662	34,969	28,821
Av. attendance	70,194	38,727	29,448	18,130
Expenditure:				
Maintenance..	£351,942	£198,979	£187,301	£87,317
Buildings.....	£ 53,953	£ 35,581	£ 58,406	£16,548
Private schools	141	176	128	114
Priv. teachers.	729	665	421	349
Enrollment	16,100	11,650	9,000	7,138
Av. attendance	13,560	9,395	8,015	5,009

In the foregoing table the figures for the commonwealth include those for the Northern Territory, which had four schools, with 135 pupils enrolled. Private schools include the schools not wholly under state control; hence the term "private," though popularly applied, is in some degree a misnomer. There are various superior and technical schools. The number of students attending lectures at the universities in 1911 are reported as follows: Sydney, 1407; Melbourne, 1129; Adelaide, 621; Tasmania, (Hobart), 147; Queensland (Brisbane), 83.

Minerals. The large mineral production of Australia is now considerably less than the agricultural or the pastoral. The following table shows the value of the most important minerals, and the total for all minerals, produced in 1911, and the grand total of production from the beginning of mining in Australia to the end of that year (the totals, however, are exclusive of returns relating to building stone, sand, brick clays, lime, cement, slates, etc.):

	Gold	Coal	Copper	*Sil.-ld.
	£	£	£	£
N. S. W..	769,353	3,167,165	590,102	2,652,548
Victoria ..	2,140,855	301,142	2,088	2,070
Queensland	1,640,323	323,998	1,151,351	79,765
S. Aust....	15,000	....	332,500	140
W. Aust...	5,823,075	111,154	78,118	33,335
Tasmania..	132,108	26,214	408,649	253,361
N. Ter.....	30,910	....	1,470	....
Cmlth....	10,551,624	3,929,673	2,564,278	3,021,219
1910	11,553,840	3,684,041	2,389,412	2,503,909
1909	12,604,509	3,083,696	2,332,988	2,329,164

	Zinc	Tin	Total	Gd. total
	£	£	£	£
N. S. W.	1,414,980	307,089	9,405,301	216,146,025
Victoria..	....	3,417	2,463,865	293,462,072
Queensl'd	....	307,847	3,658,738	99,726,118
S. Aust..	....	....	437,604	29,761,866
W. Aust.	189	55,220	6,105,853	107,569,275
Tasmania	....	513,500	1,349,497	35,176,277
N. Ter..	....	22,900	59,353	2,865,258
Cmlth...	1,415,169	1,209,978	23,480,211	784,706,891
1910....	1,289,781	950,768	23,215,191	761,200,680
1909....	1,041,524	970,888	23,045,162	737,985,489

* Silver and lead.

To the end of 1911 the total output of gold, the most important mining product, was valued at £536,196,981. The value of the 1912 output was £9,879,927, as compared with £16,204,684 in 1903, the record year for Australian gold production. The output in 1902, 1907, and 1912 and the total production to the end of 1912 are shown below:

	1902	1907	1912	Total
	£	£	£	£
N. S. W.	684,970	1,165,013	702,129	59,462,975
Vic. ...	3,062,028	3,173,744	2,039,464	291,703,453
Qld. ...	2,720,512	2,517,295	1,477,979	75,217,830
S. Aust.	24,878	45,853	28,000	920,810
W. Aust.	7,947,661	8,305,604	5,448,384	109,298,870
Tas. ...	301,573	312,380	161,300	7,407,282
N. Ter..	70,325	30,971	22,671	2,065,688
Cmlth.	14,811,947	15,550,910	9,879,927	546,076,908

The record of gold mining begins for New South Wales and Victoria with 1851, Queensland 1860, South Australia 1856, Western Australia 1886, Tasmania 1867, and the Northern Territory 1881. The greatest outputs of gold have been: New South Wales, £2,660,946 in 1852; Victoria, £12,214,976 in 1856; Queensland, £2,871,578 in 1900; South Australia, £76,025 in 1904; Western Australia, £8,770,719 in 1903; Tasmania, £327,545 in 1899; Northern Territory, £111,945 in 1881. In the period 1902-1911 Western Australia was credited with 53.53 per cent. of the gold production, Victoria, 21.07, Queensland 16.26, and New South Wales 6.94.

Agriculture. In the year 1911-12, the areas under crop and under artificially sown grasses respectively were 12,107,017 and 2,869,866 acres, as compared with 11,893,838 and 2,714,691 in 1910-11, and 8,414,054 and 1,007,115 in 1901-02. Share of the states in the 1911-12 acreage: New South Wales, 3,628,513 acres under crop and 1,119,738 under artificially sown grasses; Victoria, 3,640,241 and 1,041,772; Queensland, 526,388 and 166,175; South Australia, 2,965,338 and 30,431; Western Australia, 1,072,653 and 5760; Tasmania, 270,000 and 505,940; Federal Capital Territory, 3500 and 50; Northern Territory, 375 and 18. A very large part of the hay crop is cereal grasses, chiefly wheat and oats; of the 860,205 acres of hay in Victoria, 304,388 were wheaten and 535,146 oaten. The area under barley in 1911-12 was 116,466 acres, and the yield 2,056,836 bushels; potatoes, 130,463 acres and 301,489 tons. Crop values for the commonwealth in 1911-12 (exclusive of value of straw in the case of cereal crops): Wheat, £13,303,326 (£1 75s. 10d. per acre); oats, £1,463,780 (£2 7s. 6d.); corn, £1,637,692 (£4 16s. 4d.); barley, £483,151 (£4 3s.); potatoes, £2,296,797 (£17 12s. 1d.); hay, £10,288,960 (£3 11s. 9d.); green forage, £1,217,000 (£2 17s. 4d.). The area under sugar cane in 1911-12 was 144,283 acres, of which Queensland had 95,766 acres of productive and 34,610 acres of unproductive cane, and New South Wales 5244 and 8663. Total yield of cane, 1,682,250 tons; sugar, 187,761 tons, of which 17,299 in New South Wales and 170,462 in Queensland (18,828 and 207,182 in 1910-11). Area and production of the leading crops in 1911-12:

	Wheat		Oats	
	Acres	Bu.	Acres	Bu.
N. S. W..	2,379,968	25,080,111	70,943	1,152,827
Victoria ..	2,164,066	20,891,877	302,238	4,585,326
Queensland	42,962	285,109	557	5,783
S. Aust...	2,190,782	20,352,720	107,881	1,349,480
W. Aust...	612,104	4,358,904	77,488	961,385
Tasmania..	37,208	659,615	57,583	1,504,633
N. Ter....	2	20	......	....
F. C. Ter.	742	7,991	167	2,337
Cmlth....	7,427,834	71,636,347	616,857	9,561,771
1910-11...	7,372,456	95,111,983	676,688	15,428,456
1901-02...	5,115,965	38,561,619	461,430	9,789,854

	Corn		Hay	
	Acres	Bu.	Acres	Bu.
N. S. W....	167,712	4,606,547	651,866	726,933
Victoria	18,223	792,660	860,205	1,032,288
Queensland.	153,916	3,637,562	61,299	94,553
S. Aust......	97	1,490	521,182	605,239
W. Aust....	29	401	344,032	299,695
Tasmania....	.....	....	77,466	107,684
N. Ter......	19	400	18	40
F. C. Ter...	69	795	2,220	1,600
Cmlth. ...	340,065	9,039,855	2,518,288	2,868,032
1910-11 ...	414,914	13,044,081	2,258,405	3,175,851
1901-02 ...	294,849	7,034,786	1,688,402	2,024,608

Livestock. The average annual increase from 1860 to 1911 was: Horses, 3 32 per cent.; cattle, 2.17; sheep, 3.15; swine, 2.38. The numbers of livestock attained their maxima as follows: Horses in 1911, 2,279,027; cattle in 1894, 12,311,617; sheep in 1891, 106,421,068;

swine in 1911, 1,110,721. Livestock in 1911 were as follows:

	Horses	Cattle	Sheep	Swine
N. S. W.	687,242	3,185,824	44,722,523	370,700
Victoria	507,813	1,647,127	13,857,804	348,069
Queensl'd	618,954	5,073,201	20,740,981	173,902
S. Aust.	259,719	393,566	6,171,907	93,130
W. Aust.	140,277	843,638	5,411,542	55,635
Tasmania	41,853	217,406	1,823,017	67,392
N. Ter.	21,407	459,780	50,983	1,500
F. C. Ter.	1,762	8,412	224,764	393
Cmlth.	2,279,927	11,828,954	93,003,521	1,110,721
1910	2,165,866	11,744,714	92,047,015	1,025,850
1901	1,620,420	8,491,428	72,040,211	931,309

The cattle (including calves) slaughtered in 1911 numbered 1,545,548, compared with 1,363,074 in 1910 and 1,110,157 in 1901; sheep (including lambs), 14,267,327, compared with 15,479,915 and 8,972,169. Australia has more sheep than any other country in the world. The estimated wool production, stated as in the grease, was 768,572,533 pounds in 1911, against 792,868,466 pounds in 1910 and 690,139,012 pounds in 1907. More than half of the wool is produced in New South Wales.

MANUFACTURES. A manufactory in Australia is defined as any factory, workshop, or mill where four or more persons are employed or power is used. The following table shows for 1911 the number of manufactories, the average number of employes, salaries and wages paid (exclusive of amounts drawn by working proprietors), and value of output (including the value of raw materials used):

	Mft.	Empl.	Wages	Output
N. S. W.	5,039	108,664	£10,051,161	£ 54,340,011
Victoria	5,126	111,948	8,911,019	41,747,868
Queensl'd	1,657	37,156	3,113,835	15,675,662
S. Aust.	1,314	27,907	2,645,386	12,580,851
W. Aust.	710	15,799	1,982,883	5,311,086
Tasmania	609	10,298	827,592	3,525,087
Cmlth.	14,455	311,772	£27,531,876	£133,186,560
1910	13,852	286,963	£23,870,540	£120,860,158
1907	12,555	248,859	18,323,977	....

The difference between the value of total output and raw materials used was £54,144,984 in 1911 and £48,063,922 in 1910.

COMMERCE. The recent development of Australian commerce may be seen in the following table, which shows: Total exports; domestic exports, or exports of Australian produce; re-exports, or exports of foreign produce; total exports:

	Tot. Imp.	Dom. Exp.	Re-exp.	Tot. Exp.
1901...	£42,433,811	£47,741,776	£1,954,396	£49,696,172
1906...	44,744,912	66,299,874	3,437,889	69,737,763
1910...	60,014,351	71,836,195	2,654,955	74,491,150
1911...	66,967,488	76,205,210	3,277,048	79,482,258

Specie and bullion included in above figures:

1901...	£ 934,864	£14,4[illegible]3,398	£ 846,921	£15,270,219
1906...	2,330,017	15,584,836	2,125,097	17,709,933
1910...	1,331,960	3,587,201	1,048,076	4,635,277
1911...	1,969,581	10,403,796	1,643,290	12,047,086

The table below shows imports and exports according to the official classification: *a* animal foodstuffs, etc.; *b* vegetable foodstuffs, etc.; *c* non-alcoholic beverages; *d* spirits and alcoholic liquors; *e* tobacco; *f* live animals; *g* animal non-foodstuff substances; *h* vegetable substances and non-manufactured fibres; *i* apparel, textiles, and various manufactured fibres; *j* oils, fats, and waxes; *k* paints and varnishes; *l* stones and minerals, used industrially; *m* specie; *n* metals (unmanufactured) and ores; *o* metals (partly manufactured); *p* metals (manufactured), including machinery; *q* leather and rubber and their manufactures; *r* wood and wicker, both raw and manufactured; *s* earthenware, stoneware, china, glass, and cements; *t* paper; *u* jewelry, timepieces, and fancy goods; *v* optical, surgical, and scientific instruments; *w* drugs, chemicals, and fertilizers; *x* miscellaneous; *y* total. Trade by classes, in 1910 and 1911, in thousands of pounds sterling:

	Total Imp.		Dom. Exp.		Total Exp.	
	1910	1911	1910	1911	1910	1911
a ...	874	817	8,791	9,016	8,815	9,041
b ...	1,944	2,353	11,884	11,910	12,077	12,121
c	1,646	1,673	6	6	97	91
d ...	1,654	1,921	138	167	175	208
e	769	899	67	69	124	122
f	337	396	307	299	312	311
g ...	371	297	33,129	29,714	33,136	29,723
h ...	1,120	1,329	279	246	298	273
i	17,439	17,840	77	73	278	258
j	1,597	1,808	2,193	2,235	2,231	2,281
k ...	481	485	6	7	14	14
l	470	174	948	927	946	928
m ...	374	381	1,200	8,211	2,247	9,855
n ...	1,222	1,938	10,342	10,675	10,350	10,693
o ...	1,036	1,170	9	10	42	35
p ...	12,075	14,212	221	258	483	519
q ...	1,303	1,587	577	584	637	649
r	2,583	3,361	1,021	1,082	1,058	1,117
s	1,015	1,228	13	14	30	29
t	2,457	2,832	58	69	133	147
u ...	1,428	1,756	135	162	283	310
v	445	505	7	6	61	72
w ...	2,186	2,179	244	256	295	305
x ...	5,188	5,828	190	218	368	385
y ...	60,014	66,967	71,836	76,205	74,491	79,482

Wool exports in 1910 and 1911 respectively were: Wool in grease, 587,093,269 pounds and 578,823,623 pounds; scoured and washed wool, 78,178,300 pounds and 71,770,640 pounds; total value for the two years £28,777,283 and £26,071,193 (total value for the five years ended 1911, £132,137,652). The values of the net exports of wool in 1910 and 1911 were £28,769,504 and £26,061,687. Other net exports of pastoral products in 1910 and 1911 were: Tallow, £1,888,796 and £1,934,009; frozen mutton and lamb, £2,161,495 and £1,633,597; sheepskins, £2,003,810 and £1,603,718; frozen beef, £1,179,060 and £1,101,914; rabbit and hare skins, £566,739 and £498,037; hides, £286,274 and £467,364; preserved meats, £602,880 and £756,148; rabbits and hares, £486,592 and £407,034. The wheat exports in the two years were 47,761,895 bushels and 55,147,840 bushels; flour, 139,946 tons and 175,891 tons, representing 6,997,300 bushels and 8,794,550 bushels; so that the total wheat exports expressed in bushels were 54,759,195 and 63,942,390, the net exports being 54,750,270 and 63,930,127.

Total imports and total exports by countries in 1910 and 1911 were valued as follows in thousands of pounds sterling:

	Imports		Exports	
	1910	1911	1910	1911
United Kingdom....	36,646	39,499	37,698	35,310
United States.......	6,495	7,748	1,599	1,464
Germany	3,779	4,437	7,340	6,642

	Imports 1910	Imports 1911	Exports 1910	Exports 1911
New Zealand	2,204	2,974	2,348	2,655
British India	2,669	2,122	1,535	3,320
Belgium	1,243	2,008	5,949	6,112
Canada	650	885	100	118
Japan	718	834	657	838
Ceylon	770	739	631	5,418
Nerway	551	663	2	2
Straits Settlements	588	641	545	1,205
France	502	614	8,552	8,180
Java	539	544	345	489
Sweden	361	539	2	2
Total, incl. other	60,014	66,967	74,491	79,482

Total imports from the United Kingdom and British possessions in 1910 and 1911 were valued at £44,512,090 (74.17 per cent.) and £48,-111,453 (71.84 per cent.); exports thereto, £46,-021,798 (61.78) and £51,135,433 (64.33).

Over-sea shipping entered and cleared at the ports in 1911, 4174 vessels, of 9,984.801 tons, as compared with 4048 vessels, of 9,333.146 tons, in 1910; 4028 vessels, of 6,541.991 tons in 1901; 3719, of 5,894,173 tons in 1900.

COMMUNICATIONS. The table below shows the railway mileage, exclusive of sidings and cross-overs, of *a* government railways, *b* private railways open for general traffic, *c* total open for general traffic, *d* private lines used for special purposes only; *e* grand total. The figures relate chiefly to 1912, those for the government railways being of June 30, 1912, private railways for general traffic December 31, 1911, and private railways for special purposes December 31, 1910.

	a	b	c	d	e
N. S. Wales	3,832	141	3,973	125	4,098
Victoria	3,622	14	3,636	37	3,673
Queensland	4,266	346	4,612	21	4,633
S. Australia	*1,939	...	1,939	58	1,997
W. Australia	2,598	277	2,875	555	3,430
Tasmania	496	166	662	39	701
N. Territory	145	...	145	...	145
Cmlth.	16,898	944	17,842	835	18,677
1911	16,079	1,099	17,178	835	18,012

* Including the mileage (473) of the Port Augusta-Oodnadatta line leased to the South Australian government by the commonwealth government January 1, 1911.

Government railways under construction June 30, 1912, 3161 miles (of which 1596 in Queensland and 671 in New South Wales); authorized, 1310 miles (617 and 221). Construction of the transcontinental (Port Augusta-Kalgoorlie) line was begun in September, 1912. The route, *via* Tarcoola, is 1063 miles in length and the estimated cost of the lines, including equipment, is £3,988,000. The cost of construction and equipment of the 16,898 miles of government railway to June 30, 1912, was £160,557,160, or £9502 per mile open for traffic. For the year ended on that date the gross earnings were £19,101,000; total working expenses, £12,471,-000; percentage of working expenses to gross earnings, 65.29, as compared with 61.94 in 1910-11 and 67.92 in 1901-2.

Telegraphs (exclusive of railway telegraphs), December 31, 1911: Lines, 44,013 miles; wire, 97,053 miles; offices, 4041. The total length of line in New South Wales was 15,057 miles; Victoria, 4055; Queensland, 10,568; South Australia, 5713; Western Australia, 6914; Tasmania, 1706. Under an act of 1905 the postmaster-general is empowered to establish wireless telegraphy stations. Up to the end of 1912 approval was given for the erection of nineteen stations at or near the following localities: Port Moresby (Papua), Thursday Island, Cooktown, Townsville, Rockhampton, Brisbane, Sydney, Gabo Island, Melbourne, Hobart, Mount Gambier, Adelaide, Esperance, Perth, Geraldton, Broome, Roeburne, Wyndham and Darwin. It is intended eventually to increase the number to thirty-two.

The number of post offices and receiving offices increased from 4994 and 1393, respectively, at the end of 1901 to 5506 and 2328 in 1910 and and 5664 and 2390 in 1911. Of the post offices at the end of 1911, New South Wales had 1948, Victoria 1720, Queensland 576, South Australia 662, Western Australia 372, and Tasmania 386.

In 1912 the 1061-mile line of the Trans-Australian railway was begun, and during 1913 contracts were let and material collected for the vigorous prosecution of the work. Fills, cuts, gradings, etc. were in active construction and road-bed and other material were being assembled along the route. A section from Port Augusta, at the eastern end of Euro Bluff, was put under way. Construction problems attending this great enterprise were of unusual interest, as the various states of the commonwealth were participating actively in the work. Of the 700 miles of rails contracted for, 12,666 tons were being manufactured in Australia and the state of Western Australia itself was a contractor for a large quantity of the sleepers. The state of New South Wales undertook the construction of the commonwealth line from Queanbeyan to the new federal capital. Surveys made of the north and south transcontinental connection brought out the curious fact that its length, 1061 miles, was exactly the same as the east and west lines, and further, that its construction would not be attended with serious difficulties.

FINANCE. The following table shows the commonwealth revenue and expenditure in fiscal years ended June 30:

Revenue, 1912		Expenditures, 1912	
Customs	£12,071,434	Posts	£ 4,330,896
Excise	2,638,702	Treasury	2,308,506
Posts	3,916.254	Defense	2,128,649
Land tax	1,366,457	Customs	1,024,389
Total *	20,548,520	Total *	14,724,097
1911	18,806,237	1911	13,158,529
1910	15,540,669	1910	7,499,516
1909	14,350,798	1909	6,420,398
1908	15,019,034	1908	6,162,129

* Including other items.

Of the treasury expenditure in 1912, £2,143,-212 was for invalid and old-age pensions; of the trade and customs expenditure, £301,278 for ordinary customs and £543,503 for sugar bounties. The first commonwealth indebtedness was contracted at the begining of 1911, when the federal government assumed the outstanding liabilities of the Northern Territory and the Port Augusta-Oodnadatta railway. These debts on June 30, 1912, amounted to £3,431,836 and £2,-240,011 respectively; in April, 1912, a loan of £700,000 was issued; total debt, £6,71,847.

The consolidated revenue, and the expenditure from consolidated revenue funds of the states, for the year ended June 30, 1912, and the state outstanding debts at that date were as follows:

	Revenue	Expend.	Debt
N. S. W.	£15,776,816	£15,277,001	£100,052,635
Victoria	10,009,796	9,999,342	60,737,216
Queensland	5,989,347	5,965,692	47,068,186
S. Australia	4,450,739	4,450,739	• 31,680,124
W. Australia	3,966,673	4,101,082	26,283,523
Tasmania	1,084,663	1,064,725	11,302,411
Total	41,278,034	40,858,581	277,124,095
1911	37,365,653	37,249,315	267,127,283
1910	36,956,812	35,373,254	257,623,663
1909	34,457,640	33,983,842	251,773,533
1908	34,867,646	32,502,163	243,835,489
1903	28,672,622	28,959,238	222,871,765

• Including Port Augusta-Oodnadatta railway debt, £2,240,011.

In 1912 the aggregate sinking funds against total state debt amounted to £5,701,767, so that the net debt was £271,422,328, or £58 10s. 3d. *per capita.* Of the debt, 69.35 per cent. was floated in London, and 30.65 per cent. in Australia. Details of total state revenue in fiscal year 1912: Public works and services, £23,690,269 (57.39 per cent.); commonwealth subsidy, £5,858,744 (14.19); taxation, £5,419,668 (13.13); land, £3,954,192 (9.58); miscellaneous, £2,355,161 (5.71); total, £41,278,034. Details of state expenditure from consolidated revenue funds: Railways and tramways (working expenses), £13,665,906 (33.45 per cent.); public debt (interest, sinking fund, etc.), £10,869,267 (26.60); education, £3,593,620 (8.79); medical and charitable, £1,821,298 (4.46); police, £1,331,153 (3.26); justice, £666,255 (1.63); penal establishments. £206,571 (0.51); all other expenditure, £8,704,511 (21.30); total, £40,858,581.

In addition to above expenditure is state loan expenditure, which in the fiscal year 1912 amounted to £16,325,177 (of which £10,232,261 for railways and tramways). The total state loan expenditure up to June 30, 1912, was £275,508,261 (of which £168,146,283 for railways and tramways, £36,757,148 for water supply and sewerage, and £28,580,611 for harbor and river improvement, etc.).

Navy. In 1911 the commonwealth government adopted a programme of naval construction covering a period of twenty-two years and providing for a fleet of 8 battle cruisers, 10 protected cruisers, 18 destroyers, 12 submarines, and other vessels. The vessels serving in the Royal Australian navy at the end of 1913 were: One battle cruiser (*Australia*), 4 protected cruisers, 3 destroyers, 2 torpedo boats, 2 gunboats, and 2 training ships. The *Australia*, built at Clydebank, was launched October 25, 1911, and commissioned June 21, 1913. Rear-Admiral Sir George E. Patey was appointed to her command and to that of the Australian navy. The battle cruiser proceeded to Australia, accompanied by the protected cruiser *Sydney*, which was completed at Glasgow in June. The protected cruiser *Melbourne*, which was launched at Birkenhead in May, 1912, was commissioned in January, 1913, and soon left for Australia. At the end of 1913 there were under construction for the Australian navy the protected cruiser *Brisbane* and the destroyers *Swan*, *Derwent*, and *Torrens*, all at the navy yard at Sydney, where their keels were laid in February; and two submarines at the Vickers yard, Barrow. On July 1, 1913, the responsibility for Australian naval defense, and for the maintenance of the naval establishments at Sydney and elsewhere, was entirely assumed by the commonwealth government.

Army. The Australian defense act was extended in 1910 to provide universal military training up to the age of 25 years and came into force June 1, 1911, training beginning the following month. On April 1, 1910, there were 22,382 militia and volunteers, while on January 1, 1913, there were 34,271. On April 1, 1910, there were under training 10,597 senior cadets; on January 1, 1913, 89,100. By 1919 it was expected that there would be 100,000 senior cadets in training and 128,000 militia between the ages of 18 and 26 years. The citizen forces who receive pay for attendance at parades receive 16 days' training in the case of the infantry and 25 days in the case of the artillery. The senior cadets undergo 64 hours' training annually, but do not go into camp. The permanent force was increased from 1510 on April 1, 1910, to 2354 on January 1, 1913, and three permanent field batteries had been provided, as well as a re-armament of the fixed defenses being undertaken. A war railway council consisting of army, navy, and military officers of the commonwealth was formed, while a royal military college to educate candidates for commissions in the permanent force had been established with 95 Australians and 17 New Zealanders in attendance. Within three years 1500 horses for the field artillery had been purchased and all of the troops equipped with accoutrements. Manœuvre grounds had been secured at Liverpool, N. S. W., and Tammin, Western Australia.

Government. The executive power is vested in the British sovereign and is exercisable by his representative (and appointee), the governor-general, who is advised by a responsible ministry, the executive council. The legislative power is vested in a parliament of two houses, the Senate and the House of Representatives. The Senate has 36 members, 6 from each state. The House has 75 members, representing the states in proportion to population. Members of both houses are elected by universal adult suffrage. The governor-general in 1913 was the Rt. Hon. Thomas Baron Denman, who succeeded the Rt. Hon. William Humble, Earl of Dudley, July 31. 1911. The ministry in 1913 (formed April 29, 1910) was constituted as follows: Prime minister and treasurer, Andrew Fisher; attorney-general, William Morris Hughes; external affairs, Josiah Thomas; postmaster-general, Charles Edward Frazer; defense, George Foster Pearce; trade and customs, Frank Gwynne Tudor; home affairs, King O'Malley; vice-president of executive council, Gregor McGregor; honorary ministers, Edward Findley and Ernest Alfred Roberts. The constitution of the new ministry is given below, under History, *The Cabinet Crisis.*

The governor of each state is appointed by the crown and is assisted by a responsible ministry. Each state has a bicameral parliament elected by universal adult suffrage. Members of the upper and of the lower house respectively, are as follows: New South Wales, 57 and 90; Victoria, 34 and 65; Queensland, 43 and 72; South Australia, 18 and 40; Western Australia, 30 and 50; Tasmania, 18 and 30. Governors and prime ministers in 1913: New South Wales, Sir Gerald Strickland and J. S. T. McGowen (succeeded by W. A. Holman); Victoria. Sir John Michael Fleetwood Fuller and W. A. Watt; Queensland, Sir William MacGregor and D. F. Denham; South Australia, Admiral Sir Day Hort Bosanquet and A. H. Peake; Western Australia, Maj.-Gen. Sir Harry Barron and T. H. Bath; Tasmania, Sir Elliston Macartney and A. E. Solomon.

HISTORY

THE OPPOSITION LEADER. Early in January Mr. Deakin resigned the leadership of the federal Opposition, alleging ill health as a reason for his retirement. He was succeeded on January 20, by Mr. Joseph Hume Cook, member for Parramatta. Mr. Cook, who had been Liberal whip during the first Deakin ministry (1905-1908) and had been recognized as one of the leading Liberal politicans of the last decade, infused fresh life into the Opposition and carried on a vigorous campaign against the government.

THE GENERAL ELECTIONS. A variety of circumstances contributed to make the elections for the commonwealth parliament, held on May 31, much more interesting than usual. In the first place, it was uncertain whether the electorate would renew the mandate of the Labor government. During its term of office the Labor party had enacted the property-tax on large estates, and had pushed with vigor a comprehensive scheme of military and naval defense; its tariff proposals (see last YEAR BOOK, p. 66), however, had been unfavorably received, its referenda had stirred up opposition, and the party did not add to its popularity by deciding to press these measures, despite their defeat in 1911. The rural districts especially were disaffected and fear of the rural workers' demands consolidated the opposition to the Labor party in the farming country of New South Wales and Victoria. The situation was clearly revealed in the vote. In the suburban and mining districts, the Laborites held their own. In the agricultural constituencies, and among the middle classes, however, the Liberals won a decisive victory. Of its 44 seats in the lower house, the Ministerial party lost 7; the control of the house therefore passed to the Liberal party which now counted among its members 38 of the 75 representatives. Matters stood differently with the Senate, however. By the constitution, only half of the 36 senators are elected at the regular triennial election; moreover, in the senatorial elections the vote is counted by states, whereas in the elections to the house the states are split up into separate constituencies. The effect of this different grouping of the vote was to give a majority in the house to the Liberals and in the senate to the Laborites. Although the Liberals and Laborite voters were almost equal in number—slightly more than 900,000 each—the labor vote was so massed in the towns of the smaller states as to overwhelm the country (Liberal) vote, and to give the Labor party 11 of the 18 senators elected.

THE REFERENDA. Additional interest was lent to the elections by the fact that the important referenda defeated in 1911 were again submitted for the approval of the electorate. The referenda (as noted in the YEAR BOOK of 1911) were the embodiment of constitutional amendments passed by the parliament in November, 1910, under the auspices of the labor government, and submitted for ratification to a popular vote in accordance with the constitutional provision that amendments must be approved by the people as well as by the federal parliament. The amendments consisted of six fairly well-defined measures.

(1) The first would extend the power of the commonwealth over trade and commerce by removing the restriction clause "with other countries and among the states"; although commerce carried on within one state over the state railways was still exempted. (2) The second, while leaving partnerships, under state jurisdiction, would put both inter-state and intra-state corporations under federal control. (3) The third would give the commonwealth parliament power to legislate on the terms and conditions of labor in any trade, industry, occupation, or calling, on the rights and obligations of employers, and on all matters connected with industrial disputes. The object of this provision was to enable the government to extend the functions now exercised in a very small way by the Industrial Arbitration court. (4) The fourth would give the commonwealth power to pass laws for industrial conciliation and arbitration in relation to the state railways. This measure met with very strong objections at the hands of state-rights orators, who pointed out that while the commonwealth would be empowered to fix the wages of the state railway employes, the state would have to pay them. (5) The fifth would empower the commonwealth to make laws with respect to trusts, combinations, and monopolies. (6) The last would authorize the government to acquire "on just terms" any business which should be affirmed by resolution of both houses of parliament to exercise monopolistic power.

In 1911 the referenda were defeated by a powerful reaction in favor of state-rights as opposed to the increased power which would have been given the federal government and by an energetic opposition to "ruthless and reckless Socialistic" experiments. Moreover, all the proposals had to be approved, or all rejected, and many voters, disliking one measure, vetoed all. Nor did the referenda have the official sanction of the Labor Conference (party convention). Before the election of May 31, 1913, however, the referenda were adopted as the programme of the Labor party; a pamphlet was issued to explain them to the voters; an energetic campaign was waged to get a large number out to the polls; and the proposals were submitted as six separate referenda, which could be passed on individually. The result of these precautions was seen in a greatly increased affirmative vote; but the referenda were all rejected by small margins encountering the liveliest opposition in New South Wales, Victoria, and Tasmania. The vote on the six measures was as follows:

	Yes	No	Defeated by
(1)	923,249	955.699	16.225
(2)	924,153	961,041	18.445
(3)	925,230	960.401	17.586
(4)	921,736	965,037	21,651
(5)	931,858	949,013	8,578
(6)	882,414	917,480	17,534

Only 8578 votes out of almost two millions would have changed the results on (5); and the narrowness of the margin enabled the Labor party to assume a tone of confidence for the future. In the present campaign, labor had been opposed by the press; in the next trial of strength, whenever that should be, labor would have a journal to plead its cause; and the conviction would be forced home upon the country that the present powers of the commonwealth were wholly inadequate to the establishment of peaceful, prosperous, and just industrial conditions, and that new weapons—the weapons offered by the referenda—were needed in the fight against the trusts.

THE CABINET CRISIS. As soon as the result of the elections of May 31 made it certain that the Labor party could not hope to control the House, Mr. Andrew Fisher tendered the resignations of the Labor ministry, and Mr. Joseph Hume Cook formed a Liberal cabinet on June 24, constituted as follow: premier and minister for home affairs, Mr. Cook; treasurer, Sir J. Forrest; attorney-general, Mr. W. H. Irvine; minister of defense, Senator E. D. Millen; minister for external affairs, Mr. P. M. Glynn; minister for trade and customs, Mr. L. E. Groom; postmaster-general, Mr. A. Wynne; vice-president of the excutive council, Senator J. H. McColl; minister without portfolio, Mr. W. H. Kelley and Senator J. S. Clemons; Liberal leader in the Senate, Senator Millen.

The difficult position of the new ministry, which could carry the lower house only by the speaker's casting vote, and the upper house not at all, was clearly apparent in July, when the new parliament met for the first time. The Liberal majority in the lower house elected Mr. Johnson to the speaker's chair; in the Senate, the Laborities prevailed and Mr. Givens was elected president. No legislation was attempted, with the exception of a supply bill, designed to provide for finances until the government became settled. Parliament was then adjourned to August 12; just what Mr. Cook would do, no one seemed to know. Rumors were current that he intended to break the deadlock by calling new elections for the lower house. The Laborites, indeed, would have welcomed an opportunity to regain their majority in the lower house. On the other hand, both houses of parliament might be dissolved in accordance with the constitutional provision which allows dissolution after the Senate has rejected a measure passed twice by the House in an interval of not less than three months,—if both houses were to be reëlected, the Liberals might hope for a complete victory. It was therefore expected that Mr. Cook would endeavor to bring about a dissolution of both houses. This expectation, by the way, was further confirmed in December, when two bills passed by the House—the civil service bill and the postal voting bill—were rejected by the Senate.

THE LIBERAL PROGRAMME. When after five weeks of adjournment, parliament reassembled on August 12, it was noticed with interest that the wig, gown, and mace—traditional emblems of the speaker's authority, discarded by the Labor government in 1910—had been restored by Mr. Johnson, the new Speaker of the House. During the adjournment of parliament, the new ministry had prepared their legislative programme and Mr. Cook was now able to lay on the table a memorandum outlining the plans of the government. As was to be expected, the Liberal ministry simply ignored the nationalization of monopolies. (1) It did, however, propose to take up the question of industrial disputes and so amend the conciliation and arbitration law as to exempt rural workers and to prevent the courts from showing favoritism to trade unions or other organizations, any part of whose funds was directly or indirectly available for political purposes. (2) The protective tariff was to be maintained against Laborite attacks; although arrangements would be considered whereby trade reciprocity might be promoted with other dominions of the empire. (3) No less important was the promise that a comprehensive scheme was being prepared for national insurance on a contributory basis, together with super-annuation and pension provisions for the civil service and naval and military forces. In dealing with old age and invalid pensions, the government would give the greatest consideration to the liberty of the pensioners. (4) Another group of measures was in direct criticism of the Labor government's financial and civil service policies. The civil service, Mr. Cook declared, would be freed of favoritism. The contract system for public works would be restored and a general works department would be created for the purpose of supervising public expenditure. The banking system would be thoroughly overhauled and the present duplication of savings-banks throughout the country would be discontinued. It was possible also that the public debts of the individual states would be taken over by the federal treasury. Much controversy was awakened by these announcements of the Liberal government; for financial questions played a leading rôle in the elections and the Liberals have so vehemently condemned the measures of the Labor government that their own constructive programme was expectantly awaited. (5) Another section of Mr. Cook's memorandum dealt with the electoral law. The postal vote was to be restored; state and commonwealth electoral rolls were to be compared and harmonized; and the Canadian system of voting was to be introduced. The object of the Canadian ballot, it may be said, is to enable the court of disputed returns to detect illegal votes without infringing upon the secrecy of the ballot. (6) The Northern Territory and transcontinental railway lines were to be developed, and irrigation projects, such as the utilization of the waters of the Murray system, were to be prosecuted by the federal government in coöperation with the states concerned. (7) Other measures would be introduced concerning the transfer of Norfolk Island, fire and life insurance regulations, bankruptcy laws, and offenses against the commonwealth. (8) Finally, the government promised to promote with vigor the development of the navy and army.

RELATIONS WITH THE EMPIRE. Just what this last vague statement signified, it was difficult to determine; but no radical change in the policy of the Australian government was expected. Before going out of the office the Liberal ministry had formulated a clearly defined programme of military and naval preparation, and had frequently suggested that Australia, New Zealand, and Canada should hold joint conferences to arrange for the defense by the three dominions of their interests in the Pacific. Canada, Australia, and New Zealand were to coöperate in commerce as well, and by reciprocity in customs tariffs cultivate strong ties of friendship. Conferences between the ministers of trade in April and May pointed strongly in this direction; then came the Australian cabinet crisis and the question was left unsettled.

OTHER EVENTS. In March, Lord Denman laid the first stone of the new federal capital which is being built in the Yass-Canberra district of New South Wales. For further details see CITY PLANNING. On October 4, enthusiastic crowds at Port Jackson witnessed the assembling of the Australian naval unit, consisting of the flagship *Australia*, three small cruisers, and three destroyers. To these were to be added two submarines, three destroyers, and a cruiser—then under construction. Naval bases were being planned by the Australian government with the advice of English experts. The personnel of the navy was 3400 in June, 1913, as compared with 240 in 1910.

BUDGET. The general budget statement estimated that the current year's revenue of £21,462,000 plus an accumulated surplus of £2,653,000 would be entirely absorbed by the estimated expenditure. The budget, as presented on October 2, called for an expenditure of nearly £1,000,000 on naval construction, £1,500,000 on other items of naval defense, and over £3,250,000 on the army; the total defense budget being £5,750,000, an increase of £300,000 over last year.

AUSTRALIAN ANTARCTIC EXPEDITION. See POLAR EXPLORATION.

AUSTRALIAN CAPITAL AND CAPITOL. See CITY PLANNING.

AUSTRIA-HUNGARY. The Austro-Hungarian monarchy consists of the Austrian empire, the Hungarian kingdom, and the territory of Bosnia and the Herzegovina. Vienna is the capital of Austria, and Budapest of Hungary. In these cities the common legislature (the delegations) convenes alternately. The permanent residence of the sovereign is Vienna.

AREA AND POPULATION. The area of the monarchy is stated at 261,241 square miles, an area slightly smaller than that of Texas. The table below shows the area and population of Austria by crownlands, of Hungary by divisions, of Bosnia, and of the Herzegovina. The population of Austria and Hungary is shown according to the final figures for *de facto* population as returned by the censuses of December 31, 1900, and December 31, 1910. For Bosnia and the Herzegovina the population figures are those of the censuses of April 22, 1895, and October 10, 1910, and hence the totals given for the monarchy cannot be quite exact. As Bosnia and the Herzegovina were not annexed until 1908, the population figures for the monarchy in 1900 is 45.405.267.

	Sq m.	Pop. 1900	Pop. 1910
Lower Austria	7,654.4	3,100,493	3,531,814
Upper Austria	4,626.3	810,246	853,006
Salzburg	2,761.9	192.763	214,737
Styria	8,658.4	1,356.494	1,444,157
Carinthia	3,987.0	367.324	396.200
Carniola	3,841.7	508,150	525.995
Trieste	36.8	178,599	229.510
Gorz and Gradisca	1.126.7	232.897	260.721
Istria	1.918 6	345,050	403,566
Tirol	10,301.7	852,712	946,613
Vorarlberg	1,004.6	129.237	145.408
Bohemia	20.056.6	6,318.697	6,769.548
Moravia	8.579.7	2,437.706	2,622.271
Silesia	1.987.3	680,422	756,949
Galicia	30,307.8	7,315,939	8,025,675
Bukowina	4,031.4	730,195	800,098
Dalmatia	4,954.0	593,784	645,666
Austrian Emp.	115,831.9	26,150,708	28,571,931
Rt. bank Danube	17,201.9	2,923,401	3,084,404
Left bank Danube	12,718.9	2,049,611	2,175,924
Between Danube and Theiss	13,942.5	3,284,233	3,769,658
Right bank Theiss	12,289.2	1,674,241	1,769,681
Left bank Theiss.	16,732.8	2,336,104	2,594,924
Between Theiss and Maros	14,009.6	2,054,712	2,141,769
Transylvania	22,318.1	2,476,998	2,678,367
Fiume	8.1	38,955	49,806
Hungary	109,216.1	16,838,255	18,264,533
Croatia and Slavonia	16,425.1	2,416,304	2,621,954
Hung. King.	125,641.2	19,254,559	20,886,487
Austria-Hung.	241,478.1	45,405,267	49,458,421
Bosnia	16,239.4	1,348,581	1,631,006
Herzegovina	3,528.5	219,511	267,038
Civil population	......	1,568,092	1,898,044
Military	......	22,944	33,758
Total B. & H.	19,767.9	* 1,591,036	† 1,931,802
Monarchy	261,241.0	46,996,303	51,390,223

* Census of April 22, 1895. † Census of October 10, 1910.

Austria-Hungary is conspicuous among the countries of the world for its diversity of race and language. For the monarchy (including Bosnia and the Herzegovina), the population according to the language, or the principal language, spoken was returned by the 1910 censuses as follows: German, 12,010,669; Magyar, 10,067,992; Bohemian, Moravian, Slovak, 8,410,998; Polish, 4,978,950; Ruthenian, 3,998,872; Servian and Croatian, 5,545,531; Rumanian, 3,224,147; Slovene, 1,252,940; Italian and Ladin, 768,422; other, 1,131,693 (including foreigners in Austria and the military in Bosnia and the Herzegovina); total, 51,390,223. Population by language, with percentage of the total, in Austria and in Hungary proper (i.e. exclusive of Croatia and Slavonia was as follows, December 31, 1900:

	Austria		Hungary	
	No.	P. ct.	No.	P. ct.
German	9,950,266	35.58	1,903,357	10.40
Magyar	10,974	.04	9,944,627	54.50
Bohemian, Moravian, Slovak.	6,435,983	23.02	....	.....
Slovak	....	.....	1,946,357	10.70
Polish	4,967,984	17.77	....	.....
Ruthenian	3,518,854	12.58	464,270	2.50
Servian and Croatian	783,384	2.80	....	.....
Servian	....	.....	461,516	2.50
Croatian	....	.....	194,808	1.10
Rumanian	275,150	0.98	2,948,186	16.10
Slovene	1,252,940	4.48	....	.....
Italian and Ladin	768.422	2.75	....	.....
Other	* 608,062	.....	401,412	2.20
Total	28.571.984		18.264.533	

* Including foreigners, of whom about 300,000 Magyars.

The figures for Croatia and Slavonia, not included in the foregoing table, are: Croatian, 1,638,354 (62.5 per cent.); Servian, 644,955

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(24.6); German, 134,078 (5.1); Magyar, 105,948 (4.1); Slovak, 21,613 (0.8); Ruthenian, 8137 (0.3); Rumanian, 846; other, 67,843 (2.6).

The population of the monarchy (including Bosnia and the Herzegovina), according to the 1910 censuses, was as follows: Roman Catholics, 33,952,368; Greek and Armenian Catholics, 5,453,019; Greek Orthodox, 4,479,357; Evangelicals (Helvetian), 2,766,568; Jews, 2,258,013; Evangelicals (Augsburg), 1,790,304; others and without confession, 790,594 (the last figure includes in Bosnia and the Herzegovina 33,758 military not classified by religion, and 612,137 Mohammedans). In Austria population by religion was: Roman Catholics, 22,530,169 (78.85 per cent.); Greek Catholics, 3,417,223 (11.96); Jews, 1,313,687 (4.60); Greek Orthodox, 666,458 (2.33); Evangelicals (Augsburg), 444,307 (1.55); Evangelicals (Helvetian), 144,379 (0.50); old Catholics, 21,288. In Hungary (exclusive of Croatia and Slavonia): Roman Catholics, 9,010,305 (49.3 per cent.); Reformed (i.e. Evangelicals of the Helvetian confession), 2,603,381 (14.3); Greek Orthodox, 2,333,979 (12.8); Greek Catholics, 2,007,916 (11.0); Evangelicals (Augsburg), 1,306,384 (7.1); Jews, 911,227 (5.0); Unitarians, 74,275 (0.4). In Croatia and Slavonia, Roman Catholics numbered 1,877,833 (71.6 per cent.); Greek Orthodox, 653,184 (24.9); Evangelicals (Augsburg), 33,759 (1.8); Jews, 21,231 (0.8); Reformed, 17,948 (0.7); Greek Catholics, 17,592 (0.7).

The *de facto* population of the larger cities and communes, as returned by the census of December 31, 1910:—in Austria: Vienna, 2,031,498; Trieste (with district), 229,510; Prague, 223,741; Lemberg, 206,113; Graz, 151,886; Brünn, 125,737; Czernowitz, 87,128; Pilsen, 80,343; Königliche-Weinberge, 77,120; Žižkow, 72,173; Pola, 70,499; Linz, 67,817; Przemyśl, 54,562; Innsbruck, 53,194; Smichow, 51,791;—in Hungary: Budapest, 880,371; Szeged, 118,328; Szabadka, 94,610; Debreczen, 92,729; Zágráb (Agram), 79,038; Pozsony (Pressburg), 78,223; Temesvár, 72,555; Kecskemét, 66,834; Nagy-Várad (Grosswardein), 64,169; Arad, 63,166; Hódmező Vásárkely, 62,455; Kolozsvár (Kleausenburg), 60,808; Újpest (Neupest), 55,197; Mishkolcz, 51,459; Pécs (Fünfkirchen), 49,822; Fiume, 49,806; Györ (Raab), 44,300; Kassa (Kaschau), 44,211; Sarajevo in Bosnia had in 1910 a population of 51,919, and Mostar in the Herzegovina, 16,392.

Birth, death, and marriage rates are decreasing in Austria-Hungary as in most of the civilized world. In Austria the (living) birth rate decreased from 37.4 in 1900 to 33.3 in 1909, the death rate from 25.5 to 22.9, the excess per thousand of births over deaths from 11.9 to 10.4, the marriage rate from 8.29 to 7.54. In Hungary (including Croatia and Slavonia) the (living) birth rate decreased from 39.4 in the period 1896-1900 to 35.6 in 1910, the death rate from 27.9 to 23.5 and the excess per thousand of births over deaths increased from 11.5 to 12.1; the marriage rate decreased from 8.8 in 1901 to 8.6 in 1910. In Austria the percentage of illegitimacy was 12.3 in 1909; in Hungary, 9.6 in 1910. Movement of the population in 1910 and 1911 (births and deaths each including stillbirths):

		Marriages	Births	Deaths
Austria,	1910	214,970	946,820	625,321
	1911	216,776	919,659	647,749
Hungary,	1910	179,510	758,467	506,286
	1911	193,482	747,916	526,660
Bosnia-Herz.,	1910	20,651	77,343	52,010
	1911	20,763	76,911	49,840

Reported emigration from Austria-Hungary: 1907, 386,528 (of whom 177,354 from Austria); 1908, 101,275 (56,214); 1909, 272,266 (143,532); 1910, 278,240 (148,638); 1911, 160,751 (90,134). The great majority go to the United States.

Education. Elementary instruction throughout the monarchy is free and compulsory. In Austria, reported number of elementary schools at the end of 1910 was 23,847 (including 1245 private schools), with 108,006 teachers and 4,520,138 pupils; children of school age, 4,818,870; training colleges, 142. Elementary schools in which German was the language used numbered 9120; Bohemian, 5984; other Slav languages, 7553; Italian, 737; Rumanian, 173; Magyar, 5; other languages, 4; more than one language, 274. In 1913 there were 343 gymnasia (against 316 in 1912), with 108,838 students (105,002), and 148 realschulen (149), with 49,151 students (49,065). There are many technical, professional, and special schools. In 1910 the 49 theological colleges (of which 43 Roman Catholic) had 1941 students. The eight government technical high schools were reported to have in 1913 833 teachers and 11,780 students. The government maintains eight universities, the reported number of whose teachers and students was as follows in 1913: Vienna (German), 666 and 10,225; Prague (German), 86 and 884, and (Bohemian) 249 and 4406; Graz (German), 199 and 2147; Cracow (Polish), 195 and 3647; Lemberg (Polish), 186 and 5567; Innsbruck (German), 139 and 1357; Czernowitz, 61 and 1189. Of the total university students, 30,591, the number of women was 2624, or 8.5 per cent.

In Hungary the elementary schools, grammar schools, and repetition courses comprise the "primary" schools, in which instruction is legally compulsory. In 1911 there were 19,339 primary schools, with 47,487 teachers, and 2,938,091 pupils (of whom 2,159,696 in the elementary schools), against 19,206 schools, 46,340 teachers, and 2,903,817 pupils in 1910. Children of school age in 1911, 3,545,014, against 3,112,600 in 1910. Training colleges in 1911, 96, with 1201 teachers and 10,271 pupils. Gymnasia in 1911 numbered 187, with 3882 teachers and 63,544 students; realschulen, 42, with 1020 teachers and 14,072 students. There are 49 theological colleges (of which 29 Roman Catholic), with about 330 teachers and over 2150 students. As in Austria, there are numerous special and professional schools. The government maintains five universities, at Budapest, Kolozsvár (Klausenburg), Zágráb (Agram), Pozsony (Pressburg), and Debreczen. The last two were founded in 1912; the others had, in 1911, 652 professors and 10,222 students (of whom 422 and 6858 at Budapest).

Agriculture. The distribution of land in Austria and Hungary is stated as follows for 1910, in hectares (1 ha.=2.471 acres):

	Austria		Hungary	
	Ha.	P. ct.	Ha.	P. ct.
Arable land	10,641,996	35.37	13,916,061	42.82
Garden	377,965	1.26	427,492	1.32

	Austria Ha.	Austria P. ct.	Hungary Ha.	Hungary P. ct.
Vineyard	228,077	0.74	309,818	0.95
Meadow, pasture, etc...	7,171,779	23.90	3,977,022	12.24
Woodland ...	9,788,080	32.63	8,096,505	27.41
Lakes, marsh, etc.	105,024	0.35	66,254	0.20
Unproductive (untaxed)...	1,692,872	5.63	1,701,604	5.24
	30,000,793	100.00	32,496,437	100.00

The important products include cereals, sugar beets, wine, potatoes, and other vegetables, fruits, flax, tobacco (especially in Hungary), hops (in Bohemia), and hay. The following table shows for some of the principal crops the area (in hectares) harvested, and the yield (in metric quintals) in 1911 and 1912:

	Hectares 1911	Hectares 1912	Quintals 1911	Quintals 1912
Austria:				
Wheat	1,215,090	1,260,317	16,026,388	18,952,639
Rye	2,021,345	2,032,138	26,446,569	29,748,033
Barley	1,096,677	1,065,908	16,201,813	17,065,756
Oats	1,878,058	1,866,931	22,700,639	24,300,998
Corn	302,813	304,184	3,041,344	3,885,058
S. Beets	249,097	264,456	42,497,685	79,237,695
Hungary:				
Wheat	3,708,399	3,877,309	51,919,122	50,251,406
Rye	1,185,937	1,240,339	13,800,299	14,411,799
Barley	1,171,659	1,116,740	16,708,600	15,701,907
Oats	1,173,657	1,097,563	13,948,693	11,656,408
Corn	2,878,772	2,437,217	41,004,415	44,882,694
S. Beets	118,000	175,885	20,100,000	48,366,413

In 1912 36,739 hectares were sown to flax in Austria, with a yield of 233,752 quintals of fibre, and 165,235 of seed; in Hungary 10,186 hectares were sown, and the production of fibre was 96,402 quintals.

Livestock in Austria (1910), in Hungary (1911), and in Bosnia and the Herzegovina (1910): Horses, 1,802,848, 2,350,647, and 221,981; cattle, 9,160,000, 7,318,088, and 1,309,922; sheep, 2,428,101, 8,547,042, and 2,499,422; goats, 1,256,778, 426,975, and 1,393,068; swine, 6,432,080, 7,578,690, and 527,271.

MINING AND METALS. In Austria the total value of mining products (exclusive of salt, petroleum, etc.) in 1910 was 315,484,476 kronen, and in 1911 363,054,286 kronen; furnace products, 143,951,194 and 156,559,112. Quantity and value of the more important minerals produced in 1911: Coal, 14,379,817 metric tons (143,227,628 kronen); lignite, 25,265,334 tons (134,149,042 kronen); iron ore, 2,765,815 tons (24,926.390 kronen); lead ore, 23,845 tons (4,611,102 kronen); silver ore, 24,143 tons (4,097,745 kronen); mercury ore, 111,018 tons (2,655,191 kronen); zinc ore, 32,166 tons (2,474,178 kronen); graphite, 41,599 tons (1,641,082 kronen); copper ore, 10,974 tons (1,011,021 kronen). Metal production in 1911 included: Raw iron, 1,596,148 metric tons (127,345,750 kronen); zinc, 15,766 tons (9,181,278 kronen); lead, 18.097 tons (6,949,340 kronen); silver, 50,245 kilos (4,355,678 kronen); mercury, 704 tons (3,816,352 kronen); copper, 1761 tons (2,388,593 kronen); gold, 206 kilos (664,237 kronen). The coal output in 1912 is stated at 15,591,119 metric tons, and lignite, 26,487,000.

In Hungary the value of the coal output in 1910 was 16,679,000 kronen, and in 1911 15,481,000 kronen; lignite, 71,494,000 and 77,200,000; iron ore, 13,628,000 and 13,334,000; raw iron, 40.987,000 and 43,848,000; gold, 9,960,000 and 10,469,000; silver, 1,079,000, and 907,000.

COMMERCE. In both its import and its export values the total special trade of Austria-Hungary in 1912 exceeded that in any previous year. The tables below show, in thousands of kronen, the trade of the common customs territory. Imports of merchandise for home consumption, of total merchandise, of coin and bullion, and total imports:

	Mdse. Home Consump.	Total Mdse.	Coin and B.	Total Imports
1900.......	1,696,358	1,748,968	44,898	1,793,866
1902.......	1,720,335	1,770,281	166,084	1,936,315
1905.......	2,146,188	2,213,145	55,982	2,269,127
1907.......	2,501,974	2,587,147	43,839	2,630,986
1910.......	2,852,852	2,929,734	43,099	2,972,833
1911.......	3,191,711	3,275,208	41,414	3,316,622
1912.......	3,556,797	3,669,882	19,827	3,689,709

Exports of domestic merchandise, of total merchandise, of coin and bullion, and total exports, in thousands of kronen:

	Domestic Mdse.	Total Mdse.	Coin and B.	Total Exports
1900.......	1,942,003	2,061,705	66,546	2,128,251
1902.......	1,913,598	1,999,396	82,007	2,081,403
1905.......	2,243,780	2,390,722	59,533	2,450,255
1907.......	2,457,286	2,658,085	79,456	2,737,541
1910.......	2,418,606	2,587,641	80,931	2,668,572
1911.......	2,404,804	2,582,560	132,915	2,715,475
1912.......	2,733,855	2,926,665	178,420	3,105,085

The movement for three years of the more important classes of articles in the special trade (imports for consumption and exports of domestic produce) is shown below, with values in thousands of kronen. The several classes are indicated in the table as follows: *a* cotton and its manufactures; *b* wool and its manufactures; *c* cereals, pulse, flour, etc.; *d* wood and coal and other fuel; *e* vegetables, fruits, etc. (exclusive of southern fruits); *f* animal products; *g* iron and steel and their manufactures; *h* other common metals and their manufactures; *i* machines, apparatus, etc.; *j* electrical machinery and apparatus; *k* vehicles and vessels; *l* instruments watches, etc.; *m* silk and silk goods; *n* flax, hemp, jute, etc., and their manufactures; *o* colonial produce; *p* leather and its manufactures; *q* chemicals, by-products, etc.; *r* minerals; *s* tobacco; *t* rubber and its manufactures; *u* sugar; *v* cattle and draught animals; *w* apparel, etc.; *x* wood and bone manufactures; *y* glass and glassware; *z* paper and its manufactures; *aa* southern fruits; *ab* comestibles; *ac* beverages; *ad* gums and resins; *ae* turners' and carvers' materials; *af* earthenware; *ag* literary and artistic articles.

	Imports 1910	Imports 1911	Imports 1912	Exports 1910	Exports 1911	Exports 1912
a	363,610	379,281	395,954	87,324	101,142	112,680
b	274,280	249,694	267,770	102,523	103,327	106,357
c	107,349	126,671	161,006	116,189	102,199	138,725
d	200,682	218,566	258,142	348,571	370,388	394,919
e	161,181	226,937	204,698	98,896	114,718	134,900
f	174,545	215,052	222,582	232,404	230,887	283,913
g	57,659	65,557	92,013	47,816	56,817	61,115
h	120,448	138,597	186,737	82,548	85,464	93,705
i	106,110	118,472	151,374	30,144	32,575	36,940
j	26,221	31,778	39,878	9,525	10,191	12,695
k	18,094	21,148	23,874	14,778	13,530	14,746
l	57,311	60,701	60,021	13,638	14,975	12,150
m	121,665	121,094	123,144	41,051	44,591	48,965
n	76,444	96,178	110,188	59,134	61,001	67,797
o	85,583	108,492	120,036	15	27	23
p	79,438	91,890	101,788	68,811	67,092	77,590
q	81,400	84,138	111,814	49,404	51,311	60,611
r	56,454	62,935	81,535	45,230	42,772	47,930
s	54,916	[illegible]	61,987	13,507	14,724	14,602
t	69,278	55,334	59,423	20,076	19,995	20,930
u	162	233	2,021	241,019	216,568	254,076

	Imports			Exports		
	1910	1911	1912	1910	1911	1912
v	10,539	30,853	41,511	97,545	49,503	69,299
w	24,712	25,822	26,839	86,491	89,880	92,573
x	37,008	33,368	37,916	78,111	80,719	88,047
y	8,027	9,917	10,578	74,156	71,170	77,715
z	35,778	35,737	39,961	60,147	59,156	59,631
aa	47,498	52,296	57,837	4,042	3,629	4,027
ab	36,653	47,413	48,191	8,916	8,542	8,543
ac	12,748	13,563	13,728	34,611	36,590	36,983
ad	25,691	27,501	29,408	10,017	8,388	8,909
ae	26,393	27,222	28,924	4,048	3,723	3,470
af	9,049	9,845	11,525	23,355	24,230	25,741
ag	57,734	61,434	62,461	27,665	29,432	29,652
ah	26,539	22,934	29,825	12,250	9,464	11,287

In the special trade in 1911 and 1912, imports of raw materials, in thousands of kronen, amounted to 1,831,067 and 2,006,124 respectively; partially manufactured materials, 460,964 and 574,865; manufactures, 875,945 and 975,808; total, 3,191,711 and 3,556,797. Exports of raw materials in 1911 and 1912 respectively, in thousands of kronen, 817,583 and 961,320; partially manufactured materials, 460,964 and 511,130; manufactures, 1,125,737 and 1,261,405; total, 2,404,304 and 2,733,855. In 1911 and 1912, the imports of products of agriculture, the forest, and fisheries were, in thousands of kronen, 1,562,960 and 1,677,106 respectively, and exports 677,524 and 804,849; imports of mine and furnace products, 420,370 and 551,071; and exports 186,169 and 202,603; industrial imports, 1,208,381 and 1,328,620; and exports 1,540,611 and 1,726,403; total imports, 3,191,711 and 3,556,797, and total exports 2,404,304 and 2,733,855.

Special trade in merchandise by countries, in thousands of kronen:

	Imports		Exports	
	1911	1912	1911	1912
Germany	1,263,204	1,405,604	957,974	1,114,145
United States.	289,760	348,575	58,452	63,887
U. Kingdom...	229,448	245,362	216,279	257,373
Russia	209,215	228,811	96,319	91,328
British India..	219,739	199,314	51,574	63,434
Italy	141,629	161,662	222,188	239,399
France	112,417	119,800	74,955	84,270
Rumania	78,150	102,144	123,974	134,418
Switzerland ...	85,336	91,120	112,096	117,287
Brazil	75,376	80,010	11,693	13,312
Turkey	60,350	73,198	126,461	131,642
Belgium	50,217	56,456	22,128	26,186
Argentina	30,709	47,110	17,877	21,974
Servia	42,612	40,771	37,356	40,848
Du. E. Indies.	37,893	37,718	2,116	3,433
Egypt	35,419	36,376	39,917	31,938
Netherlands ..	24,747	25,701	23,966	29,191
Chile	13,352	22,359	3,280	2,328
Greece	19,753	22,259	15,479	23,404
Bulgaria	12,420	15,777	33,161	47,316
Total, including other..	3,191,711	3,556,797	2,404,304	2,733,855

Shipping. Vessels entered at the ports, as reported for 1910, 192,671, of 28,652,169 tons (sail, 20.608, of 795,076 tons); cleared, 192,051, of 28,548,157 tons (sail 20,510, of 783,733 tons. Under the Austro-Hungarian flag: Entered, 178,476 vessels, of 25,353,289 tons; cleared, 177,842, of 25,264,106 tons. Merchant marine at the beginning of 1912: 522 steamers, of 554,851 tons, and 16,708 sail, of 50,700 tons.

Communications. The length of railway in operation, as reported for January 1, 1913, was 48,472 kilometers (30,121 miles), of which 23,200 kilometers were in Austria, 21,881 in Hungary, and 1956 in Bosnia and the Herzegovina. Of the Austrian lines, about seven-tenths, and of the Hungarian, about four-fifths, are owned and operated by the state.

At the end of 1911, Austria had 47,076 kilometers of telegraph line, with 237,847 kilometers of wire, and 7039 offices; of these, 40,577 kilometers of line, 157,089 kilometers of wire, and 4589 offices belonged to the state. In 1912 Hungary had 26,202 kilometers of line, 153,803 kilometers of wire, and 4765 offices. Reported for Bosnia and the Herzegovina are 3269 kilometers of line, 7526 of wire, and 180 offices. The number of Austrian post offices increased from 8592 in 1906 to 9656 in 1911; Hungary had in 1911 6489, and Bosnia and the Herzegovina 185; in addition there were 36 Austro-Hungarian post offices in foreign territory.

Finance. The standard of value is gold; the monetary unit is the kronen whose par value is 20.263 cents. The cost of administering the common affairs of the monarchy is borne by both governments in a proportion agreed to by their parliaments and sanctioned by the sovereign. The agreement renewed for ten years in 1907 provides that the net proceeds of the common customs be applied to the common expenditure, and the remaining expenditure be satisfied by Austria in the proportion of 63.6 per cent. and by Hungary 36.4 per cent. The expenditure of the monarchy in 1908, 514,376,180 kronen; in 1909, 642,578,124 kronen; in 1910, 573,750,039 (461,617,785 kronen ordinary, and 122,132,254 extraordinary). Net custom receipts in 1909 and 1910 were 197,979,735 kronen, and 228,451,954 kronen, respectively; net expenditure for the two years, 445,598,389 and 345,298,385. This expenditure, for 1909, was satisfied by Austria in the sum of 283,400,575 kronen, and Hungary 162,197,814 kronen; for 1910, Austria 219,609,773 kronen, and Hungary 125,688,612 kronen.

The common budget for 1913 balanced at 594,374,988 kronen. Estimated ordinary revenue, 497,950,169 kronen; extraordinary, 96,424,819. The largest estimated expenditures were for the army (425,755,569 kronen), and the navy (144,157,210 kronen). Estimated net customs receipts for 1913, 197,704,169 kronen; estimated contribution of Austria and Hungary, 386,096,953.

In Austria, revenue and expenditure have been as follows, in thousands of kronen:

	1906	1910	1911	1912
Revenue....	2,008,495	2,895,492	3,082,732	3,173,309
Exp'diture..	1,862,292	2,901,364	3,004,035	3,184,361

The budget for 1913 showed estimated revenue of 3,137,481,539 kronen (2,943,804,420 ordinary, and 193,677,119 extraordinary); estimated expenditure, 3,137,202,566 kronen (2,799,063,052 kronen ordinary, and 338,139,514 extraordinary). The larger items of estimated revenue: Railways, 887,714,940 kronen; excise, 402,600,700; direct taxes, 397,892,000 kronen; tobacco monopoly, 331,644,500 kronen; posts and telgraphs, 212,238,000. The larger estimated expenditures: Railways, 696,965,220 kronen ordinary, and 143,759,000 kronen extraordinary; finance, 874,159,910 kronen, and 8,635,057 kronen (including 509,681,469 kronen, and 641,157 for the public debt); posts and telegraphs, and the common expense of the monarchy.

In Hungary, revenue and expenditure have been as follows, in thousands of kronen:

	1906	1909	1910	1911
Revenue....	1,357,180	1,750,783	2,074,548	1,830,779
Exp'diture..	1,245,469	1,721,564	1,901,666	1,768,349

In 1911, ordinary revenue amounted to 1,702,927,842 kronen; ordinary expenditure, 1,531,708,160 kronen; total expenditure included 145,458,415 kronen for sinking fund. The budget for 1913 showed estimated revenue of 2,072,809,031 kronen (1,834,299,156 kronen ordinary, and 238,509,875 extraordinary); estimated expenditure, 2,072,754,196 kronen (including 1,721,781,426 ordinary, 106,928,930 transitory, and 244,043,840 for sinking fund. Larger items of estimated ordinary revenue for 1913: Railways, 481,000,000 kronen; direct taxes, 283,729,934 kronen; excise, 303,426,000 kronen; tobacco monopoly, 199,467,000 kronen; posts and telegraphs, 104,035,000 kronen.

By the terms under which the union of Austria and Hungary was effected in 1867 no debts are contracted by the monarchy. The total general debt, contracted before that time, amounted on January 1, 1913, to 5,158,396,373 kronen. On the same date the debt of Austria was 7,312,753,129 kronen. In 1911 the Hungarian debt amounted to 6,390,863,683 kronen.

Army. The dual monarchy maintains a common army which derives its composition from both kingdoms, though with a single organization. The second line armies, however, which are fully organized in time of peace, are distinct and are on a national basis, being known as the Landwehr in Austria and as the Honved in Hungary. In addition, certain parts of the empire maintain special recruiting service and enlist independent troops under their own regulations, as, for instance, in Bosnia-Herzegovina. The laws of July 1, 1912, tending to the reorganization and increase of the army, and reducing the period of service from three years to two, came into effect during the year 1913, due in large part to the critical condition in the Balkans. In 1913 there were 16 army corps, which included 8 cavalry divisions and 33 infantry divisions of the active army, with a Landwehr, or Honved, division attached to it. The common army, on a peace basis, was organized into 58 brigades of infantry, including 102 regiments of the line of four battalions of four companies each, 55 of which are from the Austrian territory, and 47 are known as Hungarian, four regiments of Tyrolean chasseurs, four regiments from Bosnia-Herzegovina, each regiment of which maintains a depot battalion with skeleton organization. The law of 1912 further provided that the fourth battalion of each Tyrolean regiment should transform itself into a battalion of chasseurs. The technical troops of the Austrian army were undergoing considerable reorganization in 1913. The peace strength of the army, as organized in 1913, was as follows: Common army, 339,366; Austrian Landwehr, 50,544; Hungarian Honved, 38,529; Bosnia-Herzegovina troops, 6618. On a war basis the following figures are given as provided for by the law of 1912: Common army, 1,360,000 men; the Austrian Landwehr, 240,000 men; the Honved, 220,000 men; total, 1,820,000 men. The total could be increased to well over 3,000,000 of men of all classes, trained and untrained, by utilizing all classes of Landsturm.

In 1913 the military authorities proposed to bring the annual recruit contingent up to 270,000, from which would have to be excluded breadwinners of families, etc. Bosnia-Herzegovina and the Tyrol would provide an additional quota of 9000 recruits. While the army bill of 1912 provided that the army and navy would take 159,000 of the annual contingent, the Austrian Landwehr 28,000, and the Hungarian Honved 25,000; the new scheme would increase these numbers to 182,000, 36,000, and 34,000. The peace establishment thus would be raised from 463,000 to 560,000 men and the strength of the various units would be increased. New machine gun detachments were to be formed and for these and for new guns of all types for the artillery there was set aside the sum of 1,000,000,000 kronen, of which 800,000,000 were non-recurring items which were to be spread over five years. The army budget was to be 560,000,000 kronen as against 460,000,000 kronen. It was proposed to reorganize the artillery on a very extensive scale and to increase the number of field artillery batteries by 42, for which material was available. It was estimated that the actual increase in guns would be from 1900 to 3000, bringing the strength nearer to that of the other continental powers.

Navy. Number and displacement of warships of 1500 or more tons, and of torpedo craft of 50 or more tons, built and building, December 1, 1913: Dreadnoughts (battleships having a main battery of all big guns, that is, 11 or more inches in calibre): built 2, of 40,020 tons; building, 2, of 40,020 tons. Predreadnoughts (battleships of about 10,000 or more tons whose main batteries are of more than one calibre): built, 6, of 74,613 tons; building, none. Coast-defense vessels (including smaller battleships and monitors): built, 6, of 41,700 tons; building, none. Battle cruisers: none built or building. Armored cruisers: built, 2, of 13,380 tons; building, none. Cruisers (unarmored warships of 1500 or more tons): built, 5, of 13,815 tons; building, 2, of 6966 tons. Torpedo-boat destroyers: built, 15, of 7089 tons; building, 3, of 2361 tons. Torpedo boats: built, 36, of 6048 tons; building, 27, of 6642 tons. Submarines: built, 6, of 1686 tons; building, 8, of 4400 tons. Total tonnage: built, 198,351; building, 60,389. Austria-Hungary is eighth among the nations in amount of warship tonnage completed, and also in the aggregate of tonnage built and building. Excluded from the vessels listed above: Ships over twenty years old from date of launch unless reconstructed and rearmed within five years; torpedo craft over fifteen years old; transports, colliers, repair ships, torpedo depot ships, and other auxiliaries; vessels not actually begun or ordered, although authorized.

Officers and men in 1913, 20,574, including one admiral of the fleet, three admirals, ten vice-admirals, 67 rear-admirals, 614 captains and commanders, and 180 other line officers.

Of the new dreadnoughts, two have been commissioned, the *Viribus Unitis* in October, 1912, and the *Kaiser Franz Joseph* in July, 1913. Montecuccoli retired as marine commandant In February, 1913, Admiral Rudolf (Count) and commander-in-chief, and was succeeded by Admiral Anton Haus.

Government. Under the constitutional compromise of 1867, the administration of the monarchy as a whole is directed by the emperor-king, acting through three ministries (for foreign affairs, finance, and war), who are responsible to the delegations. These bodies, consisting of sixty members each, are elected by the Austrian and Hungarian parliaments respectively and annually convene alternately at Vienna and Budapest. They deliberate separately, communicating only in writing; but if they reach no agreement after three interchanges, they meet as one body and vote without debate. Their duties are to examine the requirements of the common services of the monarchy and to advise the parliaments as to necessary appropriations. The common government deals with finance relating to the monarchy as a whole, foreign affairs, the diplomatic, postal, and telegraphic services, the army, the navy, and certain state monopolies. The administration of Bosnia and the Herzegovina is carried on under the (common) minister of finance. Austria and Hungary have each a representative parliament and a responsible ministry appointed by the sovereign. Croatia and Slavonia and each of the Austrian crownlands have separate diets. The sovereign in 1913 was Franz Joseph I. He was born August 18, 1830, and became emperor of Austria December 2, 1848, and king of Hungary June 8, 1867. The heir presumptive is his nephew, the Archduke Franz Ferdinand, born December 18, 1863.

Common ministry in 1913: Premier and minister for foreign affairs, Leopold (Count) Berchtold, Baron von und zu Ungarschütz (appointed February, 1912); finance, Dr. Leon (Ritter) von Biliński (appointed February, 1912); war, Gen. A. (Ritter) von Krobatin (appointed December, 1912). The navy department is a section of the war ministry; the commandant, Admiral Rudolf (Count) Montecuccoli, retired in February, 1913, and was succeeded by Admiral Anton Haus.

The Austrian ministry in 1913 (formed November 3, 1911): Premier, Karl (Count) Stürgkh; minister of the interior, Dr. Karl (Baron) Heinold von Udynski; worship and public instruction, Dr. Max (Ritter) von Hussarek von Heinlein; finance, Wenzel (Count) von Zaleski; commerce, Dr. Rudolf Schuster von Bonnott; railways, Zdenko (Baron) von Forster; agriculture, Franz Zenker; national defense, Gen. Friedrich (Baron) von Georgi; public works, Ottokar Trnka; justice, Dr. Viktor (Ritter) von Hochenburger; without portfolio, Dr. Ladislas (Ritter) von Dlugosz.

The Hungarian ministry: Premier, Stephan (Count) Tisza; minister of the interior, János Sándor de Csikszentmihály; finance, János Teleszky; commerce, János (Baron) Harkányi; agriculture, E. (Baron) Ghyllányi de Loz és Bernycze; public instruction and worship, Ad. Jankovich de Jeszanicze; justice, E. de Balogh; national defense, Lieutenant-Field-Marshal S. (Baron) Hazay; for Croatia and Slavonia, Dr. Th. (Count) Pejácsevich de Borosjenö és Szeged; minister *a latere*, Stephan (Baron) Burián de Rajecz.

History

Foreign Affairs. The defeat and spoliation of Turkey-in-Europe, and the subsequent quarrels of the victorious Balkan allies were of vital concern to the Dual Monarchy: Austro-Hungarian dreams of influence if not of expansion in the Balkan peninsula were violently disarranged. Russia was posing as the "big brother" of the Slavs and was thwarting Austria-Hungary at every turn; the Balkan states might be so strengthened and united as to defy Austro-Hungarian penetration; Italy might at any moment prove to be an embarrassing rival in Albania; and Germany might not always be willing to support Austro-Hungarian demands. Even more serious were the internal problems connected with the Balkan situation. Loosely constructed of various and incompatible nationalities, and with difficulty retaining the already discontented Slavs within the empire, the Austro-Hungarian state might be seriously menaced by any outburst of Panslavic sentiment or by the establishment of strong and stable Slavic states to the southwest. While the ever-troublesome race-question was constantly aggravated by the opposition of Austro-Hungarian diplomacy and Slavic liberation, the financial resources of the empire were being sadly over-burdened by the expense of mobolizing and maintaining reserves ready for instant intervention in the Balkan conflict or even for a possible clash with Russia. Three hundred and fifty millions of crowns were demanded by these "military precautions," even though the Austrian budget showed a deficit of $30,000,000 for six months. In addition the joint ministry thought it necessary to demand an increase of 35,000 recruits in the annual contingent of the army.

The rôle played by Austro-Hungarian diplomacy in the Balkan wars has been noted in another connection (see TURKEY AND THE BALKAN PEOPLES); yet several incidents deserve special mention as peculiarly concerning Austria-Hungary. The decision of the powers to incorporate Scutari in an autonomous Albania was taken, it will be remembered, at the instance of Austria-Hungary and Italy; and it was Austro-Hungarian influence that procured the escape of civilians from the beleaguered city of Scutari. It was because of Austro-Hungarian pressure that Montenegro was forced to relinquish Scutari, after the powers had received word from Vienna that failing concerted intervention there would be Austro-Hungarian intervention. The excitement on this occasion was heightened, it may be noted in passing, by reports in the *Neue Freie Presse* to the effect that the Austro-Hungarian military *attaché* at Cettinje had been stoned. Upon the unwilling submission of Montenegro followed a relaxation of the tension in Vienna and the mobilization of troops on the frontier no longer gave birth to predictions of war. The war waged by Greece and Servia against Bulgaria was preceded by an attempt at mediation by Count Berchtold, and was probably shortened by the warning delivered to Greece and Servia on July 25, that Austria-Hungary would not tolerate the complete humiliation of Bulgaria; for in Vienna there was no desire to see Bulgaria robbed for the benefit of Servia. The gains guaranteed to Servia by the treaty of Bucharest seemed entirely too great; but the demand for revision of the treaty found no echo in Berlin. By manifesting his approval of the treaty, Emperor William created some annoyance in Austro-Hungarian circles; but he subsequently atoned for his seeming want of tact by renewed protestations of loyalty and friendship as "the faithful ally of Austria-Hungary," and the celebrations in October of the centenary of the

"Battle of the Nations" and on December 2, of Francis Joseph's sixty-fifth year on the Austrian throne afforded occasions for noteworthy expressions of mutual regard.

Treason in the Army. Sensational revelations followed the suicide of Colonel Redle, one of the chiefs of the Austrian military secret service department, employed on frontier work, who shot himself on May 28. He was forced to take his own life, it was hinted, by brother officers who knew of his treasonable intercourse with Russian officials. Investigation disclosed what was alarmingly styled "a widespread system of treachery." The conduct of a number of officers was examined, and one of them, Lieutenant Jandrie, was sentenced to life imprisonment.

The "Emigration Scandal." In Austria a considerable scandal was started by the closing of the Canadian Pacific Railway Company's Vienna offices in October. The Canadian Pacific, as well as other transportation companies, had connived, so the story went, at the evasion of military service by many adult males, especially in Galicia, who emigrated to Canada without serving their term. In this manner Austria had lost thousands of potential soldiers. Widespread comment was evoked by the detention of Canadian Pacific officials. The governor of Galicia ordered the police to arrest all men of military age who attempted to leave the country. The whole matter was subjected to thorough investigation by the budget commission of the Reichsrath. The foremost opponent of the government in this matter seemed to be a Polish editor, Stabinski, who had urged his fellow-countrymen to forsake Galicia, where they could hope for nothing but misery, and settle in Canada, the land of promise.

Suspension of Bohemian Diet. The bickerings between the Czechs and the Germans in the Austrian state of Bohemia reached a crucial point in the spring of 1913 in spite of the fact that in 1912 an amicable settlement of the language and education questions had seemed imminent. The Balkan War, with its burdensome precautionary demands on Austria-Hungary, gave occasion for an intensification of race jealousies; and the Czechs took every opportunity to show that they were quite out of sympathy with the Austro-Hungarian policy toward the Slavs of the Balkan peninsula. On April 24, when the news of the fall of Scutari was received at Prague, there was an outburst of indignation on the part of the Germans against the Slavs, and a mob which gathered around the Czech National-Socialist headquarters was dispersed only after a clash with the police. Meanwhile the Bohemian Provincial Diet had been so hopelessly entangled in quarrels between the Czechs and the Germans that it had neglected to pass essential finance laws; the school-teachers were clamoring for pay; and the treasury was almost empty. In this situation, Prince Lobkowitz, as president of the Diet, complained to the emperor, and desired that the Diet should be compelled to pass the necessary financial measures. Francis Joseph was unwilling to support Prince Lobkowitz, however. The prince then resigned, and by imperial letters patent, issued July 26, the Bohemian Diet was dissolved and the autonomy of Bohemia was suspended.

The government of the province was taken over by a crown commission of administration. The Germans were angered by the fact that five of the eight commissioners were Czechs; the Czechs, on the other hand, bitterly resented the infringement of their constitution and the suspension of the autonomy of their province, which, they said, merely meant that Count Thun, the governor, would become dictator of the province. Nor were the first measures of the new régime signally happy. In order to extricate the government from its embarrassing financial situation the commission augmented the direct taxes by ten per cent. and levied a tax on beer. It was hoped by this means to obtain an additional revenue of 17,500,000 crowns; it was certain that increased taxes would mean increased unpopularity for the administration.

The Hungarian Franchise Reform. The restricted franchise in Hungary, that is, in the elections for the Hungarian Lower House (*Kepviselöház*), has long been an instrument for a twofold oppression—of the other races by the Magyars and of the lower classes by the aristocracy and bourgeoise. Franchise reform has therefore been the object of unceasing endeavor on the part of the discontented elements, but the would-be reformers, disagreeing among themselves, have been unable to enforce their demands. In 1912, however, the Lukács ministry promised that the much-desired reform was about to be accomplished; and on January 2, Premier Ladislaus von Lukács made public announcement of a new franchise reform bill. It was a sorry fulfillment of the democratic hopes; to be sure, it doubled the electorate, but the franchise as amended would be neither general, secret, nor equal. The effect of the enlarged electorate was practically counteracted by a complicated system of age-differentiation. Common laborers must be thirty years old before they might vote. On the other hand, members of the wealthier class, who could afford to go through an intermediate school would be allowed to vote at 24. Others, who had some education, but had not received an intermediate diploma, might vote at 24 if they happened to own 8 yoke of oxen, or had paid a direct tax of 20 crowns, or had worked in certain kinds of positions for a fixed term of years. This skillful manipulation of age, property, and educational qualifications so as to retain the leadership of the classes already in power naturally evoked the wildest and bitterest protests. Even within the government party there seemed to be some dissatisfaction, and when the minister of justice, M. Szekely, resigned because of the undemocratic character of the "reform," rumor anticipated a serious split. M. Lukács was firm, however; he replaced M. Szekely with M. Balogh; and urged the government party to give the franchise bill its undivided support. As the success of the bill became more probable the Social Democrats, the *Nepszava*, increased the violence of their attacks on the measure and even threatened to call a general strike on January 26. Again in February the general strike was threatened, but M. Lukács replied through the *Pester Lloyd* that the government could not be intimidated by recourse to such means; and no general strike took place. Meanwhile the opposition members of the lower house were doing their utmost to discredit the cabinet, and refused to have anything to do with the franchise reform bill. Despairing of compromise or conciliation, the government party pushed its measure; it was accepted by a special committee of

40 on February 13, passed by the lower house, and approved without amendment by the house of magnates on March 15.

On March 13, the hundred opposition members, who had hitherto absented themselves from the sessions of the Hungarian lower house, appeared in the chamber and created such a disturbance that it was necessary to call in the police to eject the disorderly deputies. Thereupon the majority proceeded to increase the severity of the house rules. The session was closed by royal order on March 15. Deputies Lovaszy and Rath were to be excluded from 15 sessions on account of disorderly conduct, and 12 of the opposition were forbidden to enter the hall, under penalty of 500 crowns. The next session was called for May 5.

THE HUNGARIAN CABINET CRISIS. During the interval between sessions, government and opposition vied in bandying charges of corruption. Especial attention was attracted by M. Zoltan Desy, who had contemptuously styled Dr. Lukács "the greatest Panamist in Europe" ("Panamist"=grafter, referring to the scandals of the French canal project, which made "Panama" a by-word for corruption). On February 17, M. Desy was sentenced to a fine of 400 crowns and a month in prison for libel. He carried his case to a higher court. The opposition made M. Desy their idol; they fêted him as the arch-enemy of corruption; and Counts Julius Andrassy, Albert Apponyi, and Aladar Zichy came to his support with a joint declaration that M. Lukács had wrongfully diverted over 4,000,000 crowns into the electioneering funds of the ministerial party. The premier did not seem to be able to offer convincing proofs of his innocence; instead, he preferred charges of corruption against his accusers. The war of recriminations was brought to a climax in June by the conclusion of the Desy libel case. The judicial decision handed down on June 14 lamented M. Desy's outspokenness, but found that his accusations were justified. It was held that upon the conclusion of contracts with the Bank of Hungary, M. Lukács had wrongfully accepted large sums, which he had used to defray the election expenses of his party.

The exultant opposition now appeared in full force in the house of representatives to demand the resignation of the ministry. Count Tisza was greeted with jeers and cat-calls when he called the house to order; and unable to control the increasing disorder and excitement, he called upon the new parliamentary guard—just established for the purpose of quelling disturbances in the legislature. In the ensuing uproar ex-Premier Count Khuen-Hedervary was knocked down by the sword of the captain of the guard. It was hardly possible for Dr. Lukács to maintain his position after the disclosure of the corrupt practices. He therefore resigned on June 4. No change of parties took place, however, inasmuch as the majority had not changed.

THE NEW CABINET. Count Stephen Tisza was finally selected as the successor of Dr. Lukács, and on June 9 he formed a cabinet constituted as follows: Minister of the interior, M. Johann Sandor; minister of agriculture, Baron Emerich Ghillanyi; minister of the royal court, Baron Stephan Burian von Rajecz; minister of justice, Dr. Franz Szekely; minister of finance, Johann Teleszky. Dr. Szekely, it will be remembered, was the minister who resigned as a protest against the franchise reform bill; his incorporation in the new cabinet, however, was hardly to be taken as significant of a more democratic tendency. Count Tisza was too well known as the tyrannical president of the chamber to be looked to for liberal concessions. His ability and energy made him even more undesirable as a premier—that is from the viewpoint of the opposition. An attempt to overthrow him was made by Marquis George Ballavicini, who alleged that Count Tisza had endeavored to influence the witnesses in the recent libel cases. The prime minister found an easy way to answer the accusation. He challenged the accuser to a duel and sustained his honor at the expense of a slight wound, this being his third political duel of the year.

THE NEW HUNGARIAN OPPOSITION. In September, Count Julius Andrassy succeeded in forming a new constitutional opposition. In the new group a few independents and a number of the least violent of the nationalists were united on a platform of franchise extension, vote by ballot, reformed parliamentary procedure, reconciliation of Hungarian unity with the rights of non-Magyar races, a separate customs-tariff, and a separate state bank for Hungary. The present government was to be opposed by parliamentary methods. For a time all went well; the opposition benches in the house were again filled; and the European press commented favorably on the restoration of parliamentary government in Hungary. In November, however, disorders again broke out in the house, the parliamentary guards were called in, and the opposition withdrew.

CROATIA. The suspension of constitutional liberties by the *Ban* of Croatia-Slavonia, M. Edward Cuvaj, had provoked such widespread indignation in 1912, that the Hungarian government found it expedient to recall M. Cuvaj from the troublesome provinces and to entrust the performance of his duties to Baron Skerlecz, as royal commissioner. An anarchist attempt on his life, in August, 1913, might well have exasperated Baron Skerlecz and induced him to continue the inclement policy of his predecessor; he persisted notwithstanding in an endeavor to conciliate the provinces. In December, simultaneously with the report of his official appointment as *Ban*, came reports that the censorship of the press had been relaxed and the right of public meeting restored. A compromise was effected in regard to the state railways: the Croatians obtained assurance that railway officials who come into contact with passengers or with workmen would use the Croatian language, while the Hungarian government was satisfied with the understanding that Magyar would be spoken in the offices of the railways. The improvement in the relations between the government and the people made it possible to restore the Croatian Diet. Elections for the Diet were held on December 15 and resulted in a majority for the party loyal to the Hungarian-Croatian compromise of 1868.

AUTHORS' CLUB. A social club of men of letters, organized in New York City in 1882, to which only those who are the authors of a published book proper to literature are eligible. Almost all distinguished American authors have been, or are, members of it, and it draws the bulk of its membership from the active literary workers of New York and the vicinity. The library of the club is notably rich in literary biographies, and includes a valuable collection of rare books and first editions; of letters and autographs; and of precious souvenirs of many kinds connected with American and English authors.

AUTOMOBILE FIRE APPARATUS. See Fire Protection.

AUTOMOBILES. The increasing use of automobiles both for pleasure and business, is shown by the inceased registration in 1913. Up to the beginning of the year there were registered in all the States 1,115,376 cars. On October 31, 1913, the registration was 1,254,971. There were new registrations of 146,365 in the first nine months of the year. The States having the largest registration in 1913 were: New York, 129,441; California, 118,135; Illinois, 90,522; Ohio, 80,452; Pennsylvania, 78,437; Iowa, 68,120; Massachusetts, 59,954; and Indiana, 45,000. Of the total cars registered, 1,125,257 were gasoline cars for passengers; 71,981 were gasoline commercial cars; 34,075 were electric passenger cars; 17,687 were electric commercial cars. It is estimated by the *Automobile* that the total number of cars and trucks produced in 1913 was approximately 450,000. Of these, 410,000 were gasoline passenger cars and 30,000 motor trucks. The production for 1912 was 378,261 motor vehicles. The most interesting feature of the industry continues to be the increased selling of low-priced cars. The average price for cars in 1912 was slightly below $1000, and it is pretty certain that this average was lowered in 1913.

In many States new laws relating to automobiles were passed in 1913. The legislature of Colorado passed the first law requiring an annual State licensing of automobiles. Idaho, Indiana, and Wyoming passed new laws. In Ohio, the Warnes law was declared unconstitutional. A general dissatisfaction is expressed in most of the States with the present legislation governing automobiles, and in the latter part of the year there was a considerable amount of agitation for Federal regulation.

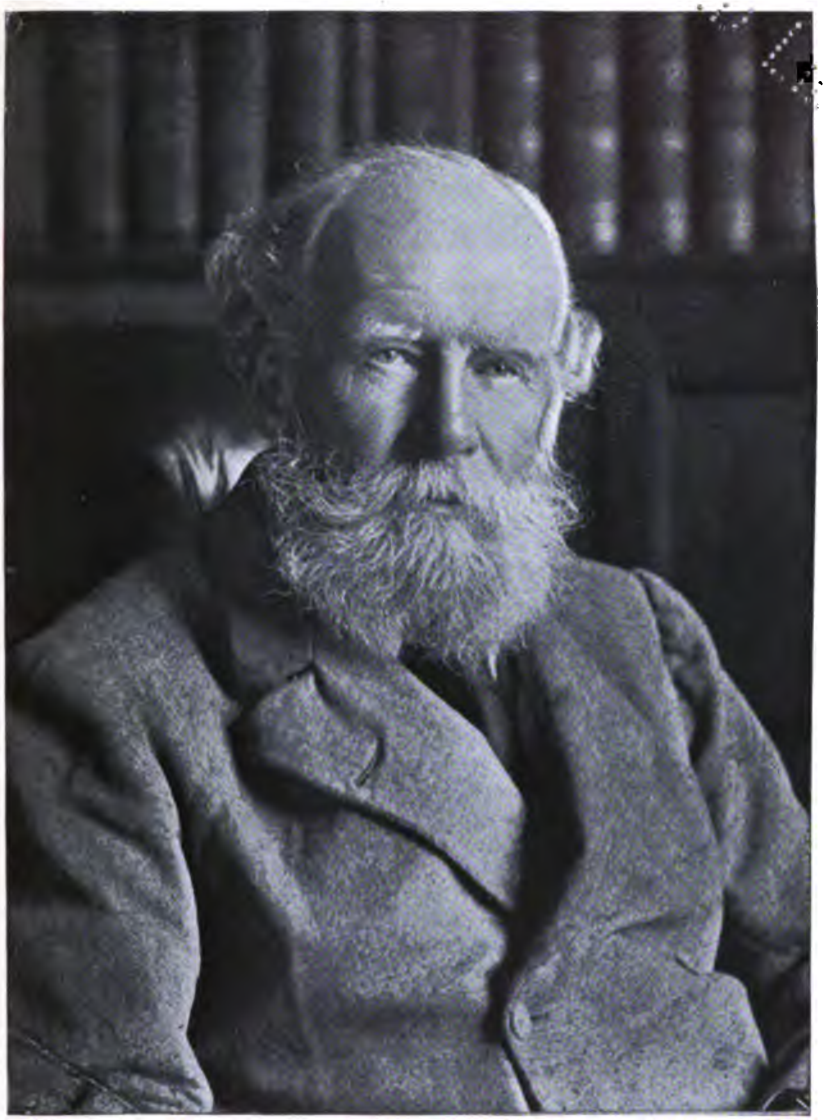
There were few changes of construction of automobiles in 1913. A standard has apparently been reached which will be altered only in minor details. The importation of foreign cars continued to decrease during the year, and the export of American cars to foreign countries increased, as it has in the last few years.

Racing Events. Earl Cooper of the United States and G. Boillot of France won the highest laurels as drivers in 1913. Cooper in a Stutz car made a new world's record of 3 hours, 27 minutes, 23.80 seconds for 200 miles on a circular track at Fresno, Cal., February 10. This driver also won a 250-mile road race at Tacoma, Wash., on July 7 (3 hours, 32 minutes, 8⅕ seconds), a 437-mile road race at Santa Monica, Cal., on August 9 (6 hours, 1 minute, 52 seconds), a 252-mile speedway race at Corona, Cal., on September 9 (3 hours, 21 minutes, 29⅕ seconds), and a 301.81-mile free-for-all race also at Corona (4 hours, 2 minutes, 38 seconds). Cooper started in six races in all, finishing first five times and second once. Boillot distinguished himself by winning the 750-mile Grand Prix at Picardy, France, July 12, in 7 hours, 53 minutes, 56⅘ seconds. He also won a 335-mile road race at Le Mans, France, August 5, in 4 hours, 21 minutes, 56 seconds, and the coup l'auto 286-mile race at Boulogne, France, September 21, in 6 hours, 7 minutes, 40⅘ seconds. The road contests for the Grand Prize and the Vanderbilt Cup, which were scheduled for Savannah, Ga., were given up, as the promoters were unable to secure a sufficient number of entries. California was the scene of most of the road races in the United States.

The best showing of American drivers aside from Cooper was made by G. Anderson, Ralph de Palma, and B. Oldfield. Anderson in a Stutz won the Elgin National Trophy race, August 30, his time being 4 hours, 13 minutes, 38 seconds. De Palma captured the 302-mile road race for the Cobe Trophy in a Mercer, covering the distance in 4 hours, 31 minutes, 56 seconds, an average speed of 66.8 miles per hour. Oldfield established a new record of 46.40 seconds for the mile on a circular track at Bakersfield, Cal. Other important races in the United States during the year were: 500-mile motordome at Indianapolis, May 30, won by Jules Goux of France in a Pegueot, S. Wishart in a Mercer second, and C. Mertz in a Stutz third (6 hours, 31 minutes, 43 seconds); 300-mile beach race, Galveston, Texas, July 30, won by L. Disbrow in a Simplex (4 hours, 17 minutes, 3.40 seconds); Los Angeles, Phœnix, and San Diego 574-mile road race, November 4, won by O. Davis (18 hours, 47 minutes); 517-mile road race, won by J. Newkirk (17 hours, 10 minutes); 444-mile road race from Sacramento to Los Angeles, July 4, won by F. Verbeck (11 hours, 1 minute); 200-mile track race at Columbus, Ohio, July 4, won by R. Mulford. The Stutz car made the best racing record of the year, winning seven out of sixteen starts, finishing second three times and third once. The Buick was represented in twenty events, winning two firsts, two seconds, and three thirds; and the Fiat in eleven events, winning two firsts, two seconds, and one third. The Mercer in five starts captured one first, two seconds, and two thirds.

AUTOSEROTHERAPY. This variety of serum therapeutics found increasing favor during 1913. The method consists of withdrawing and reinjecting immediately serum or serous exudates from the patient's own body. Its greatest usefulness is in the treatment of conditions attended with collections of fluid in the chest and abdominal cavities. The simplicity of technique commends it in these conditions as well as its efficiency, according to clinicians who have had experience with the method. A paracentesis needle attached to a graduated glass syringe is thrust into the cavity containing an exudate, enough serum is aspirated to show its character (whether purulent or serous), the needle is withdrawn nearly to the surface and a few cubic centimeters of the fluid injected into the subcutaneous tissues. The skin is sterilized with tincture of iodine and the syringe sterilized by boiling. As a rule favorable results appear promptly with the rapid absorption of the pathologic fluid, without further tapping. A variation of this technique is to raise a blister, withdraw the serum so produced, and inject it into the subcutaneous tissues. Not only pleurisy and abdominal dropsy are thus treated, but effusions such as hydrocele or those caused by mechanical injury, respond equally well.

Spiethoff used autoserotherapy in a large number of cases with chronic skin disease, and



Courtesy of the *Review of Reviews*

JOHN LUBBOCK, FIRST BARON AVEBURY

Died May 28, 1913

found that pruritus, psoriasis, and other chronic affections were favorably influenced in so far as the reaction thereby induced seemed to supply the impetus needed to start the disease on the road to a cure. Spiethoff obtained his serum from a vein and reinjected it into a vein. Lewin employed autoserotherapy in two cases of cancer, one of which had abdominal ascites. He injected 10 c.c. of the ascitic fluid after tapping. In the other case an autolysate of cancer cells was injected.

AVEBURY, JOHN LUBBOCK, First Baron. An English scientist and writer, died May 27, 1913. He was born in London on April 30, 1834, and was the eldest son of Sir John William Lubbock. A considerable part of his education was received at home, but he went to Eton, and thence directly into his father's bank. He early began to distinguish himself in various fields, and displayed a remarkable talent for business, politics, science, and letters. In 1865, when he was 31 years of age, he succeeded to the baronetcy on the death of his father. In 1870 he entered on his long parliamentary career, devoting himself to the work of Parliament with assiduity. He interested himself in social and educational movements, and in addition found time to keep up his entomological and other scientific studies. In 1872 he was appointed vice-chancellor of London University, and this position he held until 1880, having become a member of Parliament for the university at the general election in that year. He continued to sit in Parliament for London University for twenty years. He was unable to follow Mr. Gladstone in the events of 1885-86, which broke up the Liberal party, and he joined the Liberal Unionist group. Among the important measures for which his efforts were largely responsible were the formation of the early closing association and the passage through Parliament of the shop hours regulation bill. This bill limited the hours of young persons under eighteen. In 1889 he introduced a bill for the compulsory closing of shops throughout the United Kingdom at eight o'clock on the first three nights of the week. This was defeated by a large majority. In 1899 he was able to carry through Parliament a bill providing for seats for employes in shops. In 1904, largely through his efforts, the shop hours act was passed. This empowered local authorities to make closing orders on the representation of a two-thirds majority of traders. In 1900 his work in Parliament came to an end as the result of his being raised to the peerage. In addition to his parliamentary duties and his interests in scientific pursuits, he remained at the head of the great banking firm of Robarts, Lubbock & Co. He also devoted much attention to municipal work. In 1889-90 he was vice-chairman of the London County Council and was chairman of that body in 1890-92. The range of his interests and his faculty of presenting scientific facts in an interesting manner won for him a higher place in the estimation of his fellow-citizens than was attained by many men of greater powers of mind. In industry and capacity for giving attention to a variety of interests simultaneously he has not often been equaled. He was an anthropologist, an ethnologist, and a botanist. He was also a great student of geology, and notable as a man of letters. His published works which had the largest circulation were those which dealt with literature and the art of living. These were immensely popular. Among them may be noted the *Hundred Best Books; Pleasures of Life* (Parts I. and II.); *The Use of Life,* and *The Beauties of Nature.* Over 170,000 copies of *The Use of Life* were sold, and of *The Pleasures of Life*—the two parts together —nearly 500,000 copies were sold. In among other works, and in addition to the books already mentioned, he published *Flowers, Fruits and Leaves; Origin and Metamorphoses of Insects* (1874); *Ants, Bees and Wasps* (1882); *On the Senses, Instincts and Intelligence of Animals; Chapters on Popular Natural History; Prehistoric Times* (1869); *The Origin of Civilisation and the Primitive Condition of Man; The Scenery of Switzerland; The Scenery of England* (1902); *Coins and Currency* (1902); *Essays and Addresses* (1903); *Free Trade* (1904); *Marriage, Totemism, and Religion* (1911); and over 100 scientific memoirs in transactions of the Royal Society.

AVIATION. See AERONAUTICS, MILITARY PROGRESS, NAVAL PROGRESS, and *Army* and *Navy* under various countries.

BACON, JOHN MOSBY. An American soldier, died March 20, 1913. He was born in Kentucky in 1844. In 1862 he enlisted as second lieutenant in the Eleventh Kentucky Cavalry, but a few months later joined the Fourth Kentucky Cavalry. He fought throughout the Civil War, rising to the rank of major, and was honorably mustered out of service in 1865. In the following year he was appointed captain in the Ninth Cavalry. He studied at the Artillery School, graduating in 1872. In 1884 he was appointed major in the Seventh Cavalry; in 1897, colonel in the Eighth Cavalry. At the beginning of the Spanish-American War he was made a brigadier-general of volunteers. He received the brevet rank of major in 1867 for volunteering at the siege of Resaca, Ga. He saw service against the Indians on the Rio Pesos in 1867, and served in other Indian campaigns. From 1871-84 he was aid to General Sherman. In 1899 he was honorably discharged from the volunteer service. In the same year he was retired at his own request after thirty years' service.

BAHAMAS. A British West Indian colony, made up of about twenty inhabited islands and numerous islets and rocks, whose area totals 4403½ sq. miles with a population of 55,944. The principal islands are New Providence (with 13,554 inhabitants and containing the capital, Nassau), Abaco, Harbour Island, Eleuthera, Inagua, Cat Island, Ragged Island, Rum Cay, Exuma, Long Island, Long Cay, etc. The colony is a popular winter resort for North American tourists, and its trade relations are mainly with the United States. Free primary education is provided by the government schools. The soil is especially suitable for sugar-cane and cotton, but these industries have declined. Over 20,000 acres are devoted to the sisal plant (export in 1911, 6,672,780 lbs., valued at £44,855). Imports and exports for the calendar year 1911 were valued at £311,095 and £209,251 respectively, compared with £239,014 and £188,286 in 1910. Revenue and expenditure (1911-12), £85.592 and £82,676 (£84,386 and £85,315 in 1910-11.) The customs revenue in 1911-12, £71,563. Tonnage entered, 1,739,957 (149,-415 British). Total public debt March 31, 1912, £51,568. G. B. Haddon-Smith was governor in 1913.

BAKER, James Heaton. An American soldier, editor, and writer, died May 26, 1913. He was born in Monroe, Ohio, in 1829, and graduated from Ohio Wesleyan University in 1852. In 1855 he was elected secretary of State of Ohio, serving two years. In 1857, having moved to Minnesota, he was elected secretary of State of that State, and was re-elected in 1861. He resigned the office to enter the army. In 1862-63 he served under General Sibley in the Indian War and was placed in command of the post at St. Louis under General Schofield. In 1865 he was breveted brigadier-general of volunteers for faithful and meritorious services. In the same year he was mustered out of service. From 1871-75 he was United States commissioner of pensions under President Grant; from 1875-79, surveyor-general of Minnesota; from 1881-86, State railroad commissioner. In 1879 he purchased the *Union* and *Record*, Republican newspapers, and combined the two, forming the *Mankato Free Press*, which he edited and published for several years. Of the history of Minnesota and the region of the Great Lakes he wrote extensively. His chief work, published in 1908, was *The Lives of the Governors of Minnesota.*

BALFOUR, A. J. See Great Britain, *History.*

BALKAN QUESTION. See Turkey and the Balkan Peoples.

BALKAN STATES, The. See Albania; Bulgaria; Greece; Montenegro; Rumania; Servia; and Turkey.

BALKAN WAR. See Turkey and the Balkan Peoples.

BALL, Sir Robert Stawell. A British astronomer, died November 25, 1913. He was born in Dublin in 1840, and was educated at Trinity College, Dublin, from which he graduated as university student in mathematics in 1861. In 1865 he was appointed astronomer to the Earl of Rosse, and spent two years in charge of the latter's observatory. Two years later he received the appointment of professor of applied mathematics and mechanism at the Royal College of Science for Ireland, and then professor of mathematics at Trinity College, a chair which he occupied for seven years. In 1873 he became a fellow of the Royal Society, and in the following year was made professor of astronomy in Trinity College, Dublin, and royal astronomer of Ireland. He held the latter post until 1892, when he was appointed Lowndean professor of astronomy and geometry at Cambridge University, together with the position of director of the Cambridge Observatory. In 1901 and 1902 and again in 1907 he visited the United States, where he delivered a series of lectures. On his second visit he spoke in behalf of the peace movement. He also complimented American scientists and said that the greatest astronomical discoveries were being made by American astronomers at the Harvard, Yerkes, and Lick observatories. In 1886 he was knighted by Queen Victoria, and he received the degree of LL.D. from Trinity College. At various times he was president of the Royal Astronomical Society, of the Mathematical Association, and of the Royal Zoölogical Society of Ireland. His published writings include *A Treatise of Spherical Astronomy; The Story of the Heavens,* (1885); *Star Land* (1889); *In Star Realms; In the High Heavens; Time and Tide* (1889); *The Cause of the Ice Age*; *Atlas of Astronomy* (1892); *The Story of the Sun* (1893); *Great Astronomers* (1895); *The Earth's Beginning*; and *Popular Guide to the Heavens* (1905). He also wrote many memoirs on mathematical, astronomical, and physical subjects.

BALLOONS. See Aeronautics.

BALLOT, The Short. See Electoral Reform.

BALNEOLOGY. See Hydrotherapy, and Saratoga Springs.

BALTIMORE. See Maryland, *Politics and Government.*

BANANA FOOD PRODUCTION. See Horticulture.

BANK CLEARINGS. See Banks and Banking, and Financial Review.

BANKERS' ASSOCIATION, American. See Banks and Banking.

BANKING REFORM. See Banks and Banking, and Currency Reform.

BANKS, National. See Banks and Banking, and National Banks.

BANKS, State. See State Banks.

BANKS AND BANKING. Matter of interest in connection with the study of banking conditions will be found under the following articles: National Banks, State Banks, Savings Banks, Postal Savings Banks, Loan and Trust Companies, Agricultural Credit, Currency Reform, Clearing House and Financial Review.

General Statistics. There were in the United States on June 4, according to the report of the Comptroller of the Currency, 7473 national banks; 14,011 State banks; 1978 savings banks; 1016 reporting private banks; 1515 loan and trust companies. The aggregate resources of these 25,993 banks were $25,712,163,000. This was an increase over 1909 of 22 per cent. The total loans and discounts were $14,626,700,000; bonds, stocks, and other securities held amounted to $5,407,200,000; specie on hand totaled $1,113,300,000. In 1903 there were only 13,684 banks with aggregate resources of only $7,738,900,000. The individual deposits increased from $9,553,600,000 in 1903 to $12,784,500,000 in 1908, and to $17,475,700,000 in 1913. Of these deposits one-third were held by national banks and two-thirds by all others. Of the loans and discounts 42 per cent. were credited to national banks, nearly 20 per cent. to State banks, 14 per cent. to mutual savings banks, 5 per cent. to stock savings banks, and nearly 20 per cent. to loan and trust companies. The great predominance of the national banking system among American banking institutions is shown by the following percentage distribute of total resources: National, 42.9; State, 16.2; mutual savings, 15.9; stock savings, 4.3; private, 0.7, and loan and trust companies, 19.9.

Banking and Currency Law. Of equal importance with the tariff revision was the revision of banking and currency laws by the Owen-Glass bill passed in December. Even while the tariff was before Congress, committees of the House and Senate were busily engaged in drafting bills, and the House bill was passed in September. Legislation was universally recognized as urgent. The Aldrich-Vreeland act of 1908, whereby about a half billion dollars of emergency currency had been prepared, would have expired by limitation June 30, 1914. That act was passed as a temporary measure only, owing to the great diversity and immaturity of opinion regarding most desirable plans for permanent reorganization of the banking system. The wide spread discussion of the "Aldrich Plan" and of numerous modifications of it had, however, put the country through a process of education. This made possible ready agreement upon certain general and fundamental principles.

After signing the Underwood tariff bill early in October, President Wilson declared that "only half the journey" had been accomplished; that the country, having been freed from a condition making monopoly easy and even natural, it must next be freed from the financial power which creates monopoly. He greatly desired that a currency bill be passed before the close of the special session. This was not accomplished, though considering its great importance, passage of the banking bill through Congress was remarkably rapid.

The bankers of the country as represented by a great conference at Chicago in September, while approving many features of the House bill, desired to make numerous modifications in it. This same attitude was reflected by the annual meeting of the American Bankers' Association in Boston in October. The bankers greatly desired one Federal reserve bank instead of eight or twelve, they strongly urged that the membership of the Federal reserve board include at least three chosen by the banks, on account of the dangers of political control; they preferred that the entrance of a national bank into the system be voluntary instead of compulsory; and they strongly objected to making the note issues obligations of the United States, instead of obligations of the reserve banks alone. While the bill as finally enacted included none of these suggestions, numerous minor changes suggested by the bankers were included. Mr. Frank A. Vanderlip, president of the National City Bank of New York, drew up a measure which he endeavored to have substituted for the House bill. This called out acrimonious attacks by Democratic leaders. These leaders themselves were much divided on the question of the degree of centralization. Thus the Senate committee was in October evenly divided on the question of a central bank. Opposition, however, to a clear-cut central bank was too strong to permit its creation. Regarding the plan finally adopted, however, Mr. James J. Hill declared that it contained "the repudiation of the central bank idea in form and the acceptance of it in fact."

In November there were three bills before Congress—the House bill, the bill of Chairman Owen and five other Democrats of the Senate finance committee, and bill of five Republican members of that committee and the Democratic Senator Hitchcock. The Hitchcock measure was finally rejected in December, by a narrow margin. By serious attention, strenuous labor, and honest desire to serve the best interests of the country Senator Owen and Representative Glass, respectively chairmen of the Senate and House committees, succeeded in embodying in the Owen-Glass bill the points receiving general approval among Democratic members of Congress.

This bill when finally enacted, December 22 and 23, received a vote of 298 to 60 in the House and 43 to 25 in the Senate. It was finally passed as a party measure, but support was drawn from all parties. In the House the affirmative included 249 Democrats, 35 Republicans, 13 Progressives, and 1 Independent. The negative included 57 Republicans, 1 Progressive, and 2 Democrats. In the Senate approval was given 39 Democrats, 3 Republicans, and 1 Progressive. The Republicans were Weeks of Massachusetts, Norris of Nebraska, and Jones of Washington. The Progressive was Poindexter of Washington. Passage was facilitated by the removal in conference of a provision for the guaranty of bank deposits. It was understood that a bill to provide such guaranty would be taken up later for separate consideration. After siging the bill on December 23, President Wilson wrote to Senator Owen and Representative Glass letters of congratulation in which he declared this the first great constructive measure designed to show that the Democrats know how to serve their country. The bill was widely approved by bankers and hundreds of banks wrote or telegraphed their desire to enter the new system.

While the new law went into effect immediately upon its approval some time was necessary to put it fully into operation. An organization committee, consisting of the Secretary of the Treasury, the Secretary of Agriculture, and the Comptroller of the Currency, had first to promulgate a plan of procedure. It was expected that all preliminary steps would require some months; meanwhile the Aldrich-Vreeland act, extended by the new law to June 30, 1915, would be available in case of emergency. The Owen-Glass law allowed national banks sixty days in which to make application for membership in the new system; and allowed a lapse of one year before the government should compel the dissolution of any national bank failing to join. The organization committee planned to hold hearings in a number of cities from Boston to San Francisco for the purpose of determining the most suitable places in which to locate the reserve banks. These hearings were to begin at New York, January 5, 1914.

Organization. The central body in the new system is the Federal reserve board at Washington. This will consitst of the Secretary of of the Treasury, the Comptroller of the Currency, and five others appointed by the President with the aproval of the Senate. After the first appointments, which will be for terms of two to ten years, all will be for ten years. They will receive salaries of $12,000 per year. At least two of them must be experienced in banking and finance, but none of them may own stock in a member bank or have banking affiliations while in office. One of the five appointed will be designated by the President as governor and another as vice-governor of the board. This board will excercise general control over the system and must make an annual report to the Speaker of the House. It will examine the reserve banks; supervise the issue and retirement of notes; in emergencies suspend for thirty days and thereafter for further fifteen-day periods the regulations regarding reserves; and permit, or on the vote of five members require, reserve banks to rediscount other reserve banks' paper at rates fixed by it;

fix the number and location of reserve and central reserve cities; remove or suspend officers and directors of reserve banks; and otherwise supervise the system. It has no power over the ordinary business of individual banks. The bankers of the country made a strong fight for control of the Federal reserve board on the ground that the system should be kept out of politics. But the Democratic leaders contended that this board was mainly supervisory in function and should not be controlled by banks supervised.

As an intermediary between the Federal reserve board and the individual banks there is created an advisory council composed of one representative from each reserve district. It will meet in Washington to advise with the Federal board concerning business conditions, discount rates, note issues, and reserve conditions.

There will be selected by the organization committee from eight to twelve cities where regional (Federal) reserve banks will be located. The entire country will be divided geographically with these cities as the centres of districts. All the national banks in a district must join the new system; State banks whose capital and reserves meet the requirements of the national banking act may upon vote of 51 per cent. of their capital stock become national banks and join the new system. Each local bank becoming a member must subscribe for stock in the regional bank of its district to the amount of 6 per cent. of its own capital and surplus. These subscriptions will make up the entire capital of the regional banks, which will thus so increase or decrease as to always equal 6 per cent. of the combined capital and surplus of member banks; except that, in case enough banks do not join to make the capital stock of a regional bank equal to $4,000,000, the public may purchase such stock in amounts limited to $25,000 for one person. But stock purchased by the public must be voted by a government representative on the board of directors of the regional bank. Subscriptions must be paid in gold or gold certificates. Member banks are required to pay on call for one-sixth of their subscription, one-sixth in three months, one-sixth in six months thereafter; and the other half may be called for by the Federal reserve board when needed. This stock in non-taxable and will bring 6 per cent. cumulative dividends. Profits over and above this will be divided between the creation of a surplus fund for the regional banks and the payment of a franchise tax to the government. Until a reserve bank's surplus fund equals 40 per cent. of its paid-in capital, one-half of the annual excess profits will go to the surplus; thereafter all will go to the government. What the government thus receives may be used at the discretion of the Secretary of Treasury to increase the gold reserve behind greenbacks or reuuce the bonded debt. No member of Congress may be a member of the Federal board, a director of a reserve bank, or an officer or director of a member bank.

Federal Reserve Banks. Each of the reserve banks will be controlled by a board of nine directors, of whom three shall be chosen by the member banks; three by electors, chosen by the same banks, and representative of the commercial, industrial, and agricultural interests of the district; and three by the Federal reserve board. One of these latter will be designated by the Federal board as chairman and Federal reserve agent for the reserve bank, and another as deputy chairman and agent. Both these must be experienced in banking affairs. By the manner of selecting these directors the member banks will have control of the reserve banks and thus of the practical and technical banking operations of the entire system. Their capital in $100 shares will be owned by member banks, as above noted.

These banks may receive from member banks and from the United States deposits of lawful money, national bank notes, Federal reserve notes and checks and drafts upon solvent member banks payable on damand. They may do banking business with member banks only, unless authorized by the Federal reserve board to rediscount paper for one another. But they may buy or sell in the open market at home or abroad cable transfers and bankers' acceptances of certain kinds without the endorsement of member banks. Moreover they may deal in gold coin and bullion at home or abroad and make loans thereon; they may buy and sell govermnent bonds and notes, and bills and revenue bonds and warrants of civil divisions of the United States, including irrigation, drainage, and reclamation districts. The regional bank may rediscount, that is buy at a discount, the "prime commercial paper" of any member bank, when the latter wishes to convert such assets into cash. The rediscounting provisions of the act are of especial importance because upon them depends very largely the efficacy of the new system to meet the varying needs of trade. "Any Federal (regional) reserve bank may discount notes, drafts, and bills of exchange arising out of actual commercial transactions," that is "issued or drawn for agricultural, industrial or commercial purposes." The Federal reserve board has power to determine the character of the paper thus eligible for discount, but no paper "issued or drawn for the purpose of carrying or trading in stocks, bonds or other investment securities, except bonds and notes of the government of the United States" shall be eligible. All paper eligible for discount at a regional bank must mature within ninety days from time of discount; except that paper drawn or issued for agricultural purposes or based on livestock and maturing within six months may be discounted to an amount to be determined later by the Federal reserve board. In the paper eligible are included acceptances based on import or export trade and maturing within ninety days, and drafts growing out of them and running not longer than six months from sight. The reserve banks may establish rates of discount subject to review by the Federal reserve board; they may maintain accounts for exchange purposes with one another; and they may establish agencies in foreign countries.

Reserves. The total reserve required of banks in the central reserve cities, New York, Chicago, and St. Louis, is 18 per cent. of demand deposits and 5 per cent. of time deposits. Six of the 18 per cent. must be kept in the banks' own vaults, 7 per cent. in the regional reserve banks, and the remaining 5 per cent. in either of these two places. For banks in other reserve cities 15 per cent. of demand and 5 per cent. of time deposits are required as reserve. During the first two years 6 per cent. must be kept in the banks' vaults, and afterwards only 5 per cent.; 3 per cent. must be kept in the regional reserve bank during the first year and thereafter 1 per cent. additional each six months until 6 per cent. is there held. That portion of the 15 per cent. reserve not ~~thus~~ provided for may be kept for ~~three~~ years in other banks, in its own vaults, or in the regional banks; but after that time this portion must be kept in one of the latter two places. For country banks a total reserve of 12 per cent. of demand deposits, and 5 per cent. of time deposits is required. Of the 12 per cent., 5 must be kept in the bank's own vaults for two years, and 4 afterwards. For the first year 2 per cent. must be in the regional bank, but increasing 1 per cent. every six months thereafter until 5 per cent. is kept there. The unallotted portion of the total of 15 per cent. must be kept for three years in reserve city banks; thereafter it must be kept either in the bank's own vaults or in the regional bank.

Thus the regional banks would shortly hold minimum reserves equal to 7 per cent. of the deposits of central reserve city banks, 6 per cent. of those reserve city banks, and 5 per cent. of those country banks; and they might, after three years, have in addition reserves of 5 per cent. of the deposits of the first group, 4 per cent. of those of the second, and 3 per cent. of those of the third. These enormous funds plus government deposits will constitute the reservoirs from which the legitimate financial needs of the country will be met in times of monetary stress.

Note Issue. Probably the most debated features of the new law were those dealing with the manner of issuance of bank notes. The country was generally agreed that the bond-secured national bank currency must give place to a system responding more readily to the volume of business needs. But there was sharp difference of opinion as to the extent to which the government should have control of note issues and responsibility for note redemption. At one extreme were those who held that the banks alone should control and be responsible for the volume of notes issued; at the other were those who would give full power and responsibility to the government. The actual legislation was a compromise. The government will print the notes in denominations of $5, $10, $20, $50, and $100. They will be known as Federal reserve or treasury notes, and will have distinctive design and serial numbers for each reserve bank. The notes are in the first instance to be placed in the custody of one of the three directors of each regional bank appointed by the Federal reserve board. Such directors will be known as Federal reserve agents. In order then to secure the notes the reserve bank will place some of its rediscount commercial paper in the hands of its reserve agent and receive notes of not greater value in exchange. As an additional security a bank must maintain for note redemption a reserve of gold equal to 40 per cent. of the par value of the notes it issues; but in this reserve may be included the bank's share in the redemption fund noted below and its deposits of gold or lawful money with another reserve bank. Reserve banks must also maintain in gold or lawful money, that is gold or greenbacks, a reserve of 35 per cent. of its deposits, in addition to the reserve against notes. It the note reserve falls below 40 per cent. a tax is imposed; this is added to the rediscount rate to member banks and is designed to check an overexpansion of currency. In times of panic the Federal reserve board may, however, suspend these requirements in order to afford quick and temporary relief. One reserve bank may not pay out the notes of another, except under penalty of a 10 per cent. tax. This provision is designed to hasten the speedy retirement of notes as soon as they have served their purpose. In this manner the volume of notes is expected to rise and fall automatically with the rise and fall of business needs. In emergency the Federal reserve board may suspend this regulation in order to prevent money stringency.

The reserve banks must maintain with the United States Treasury a redemption fund in gold deemed by the Secretary sufficient for note redemption. From this the Treasury will redeem notes presented to it and return them to the issuing bank, as under the national bank system. The bank will then reimburse the redemption fund. A bank's deposit in this fund may be counted as a part of its 40 per cent. required reserve against its outstanding circulation. Because of this fund the Treasury is pledged to redeem in gold on demand all notes actually presented to it. It was on account of this pledge that opponents of the new law charged that it was tainted with fiat money folly; but redemption by the Treasury is merely incidental to final redemption by the issuing bank.

In the last days of debate on the bill various attacks, notably one by Senator Elihu Root, were made on it on the ground of dangerous inflation. Mr. Glass answered this by showing that the notes wold have the following security: The 40 per cent. gold reserve; a reserve of 1000 per cent. of commercial paper; a first lien on all the resources of the regional banks; the double liability of stock holding banks; the pledge of the government; and the discretion of the officers of member banks, reserve banks, and the Federal reserve board.

Retirement of National Bank Notes. After two years and at any time for twenty years any member bank may retire its circulation in whole or in part by authorizing the Treasurer of the United States to sell government bonds on which such notes are based. The Federal reserve banks may be required to purchase such bonds to a total amount not exceeding $25,000,000 per year; and in that case they may increase their own circulation by an amount equal to the par value of the bonds purchased. In exchange for 2 per cent. bonds available for note issue under the national banking act but upon which no circulaiton is based, the Secretary of the Treasury may issue one-year gold notes for one-half their amount and thirty-year 3 per cent. gold bonds for the remaining half.

Other Provisions. As an important step in the direction of improving agricultural credit (q.v.) the new law authorizes any member bank, except those in New York, Chicago, and St. Louis, to make loans on five-year farm mortgages up to 25 per cent. of their capital and surplus, or up to one-third of their time deposits, such mortgages not to exceed in amount one-half the value of the land mortgaged. By other sections any member bank with a capital of at least $1,000,000 or any regional bank is authorized to establish branches in foreign countries. The object is to increase the facilities for American foreign trade.

CANADA. The Canadian banking law is regularly revised every ten years. It would ordinarily have been revised in 1910, but revision was postponed to 1913 owing to the failure of the Farmers' Bank. The new law extended the charters of the twenty-four existing banks to July 1, 1923. The principal innovations in the new act were: (1) increased protection against malpractices; (2) extension of the bank's authority to make loans to farmers; and (3) increased power of note issue. In order to insure greater safety the new law provides additional safeguards against fraudulent organization, requires more detailed remarks and compels the banks to submit to an annual share-holders audit. This latter requirement was opposed by a member of the banks. They argued that the present auditing system by experts is effective; that the banks themselves are deeply interested in maintaining their own soundness; that the previous system located all responsibility with the bank directors instead of dividing it with the share holders. They pointed out also that the banks incur heavy expense to insure thorough inspection, as illustrated by the Canadian Bank of Commerce, the inspection of which, including 370 branches, cost $102,700, in 1910. On the other hand it was shown that there had been a number of failures; and that the public had no means of judging a bank's soundness except by returns made by the bank. The authorization of loans to farmers on their threshed grain in storage or in transit upon cattle was in obedience with the demand of middle and western Canada. It was expected, however, to be of benefit to farmers throughout. The most important feature of the new law is the creation of the central loan reserves. Under the previous act banks could issue notes to the amount of their unimpaired paid-up capital; with the provision that during the crop-moving period—September to February inclusive—they might issue an additional 15 per cent. of their combined capital and surplus. These features remain unchanged, but each bank may now issue any amount of notes provided that for any surplus over and above the amounts thus authorized the bank deposit with a board of trustees at Montreal gold or dominion notes to the full amount of the surplus notes. The bank, however, must pay a tax of 4 per cent. on the 15 per cent. of extra notes issue during the crop-moving period, but there is no tax upon the surplus notes based on gold or legal tender notes. This new feature is expected to create a consiberable gold fund in Montreal, which add greater safety and elasticity to the Canadian banking system.

NEW YORK. The Van Tuyl commission was authorized by the New York legislature and appointed by superintendent of banking to revise the State banking laws. It met in September and chose Mr. A. Burton Hepburn of the Chase National Bank and chairman of the currency committee of the American Bankers' Association as chairman. It was to report by February 1, 1914.

BAPTISTS. According to statistics of the *American Baptist Year Book* for 1913, the total number of Baptists in the United States was 5,529,573, and the total number in the world was 6,516,483. The Baptists in the United States are divided loosely into two large bodies and several smaller ones. The two main bodies of the regular denomination are the Northern and Southern. The most important of the smaller bodies with their communicants in 1913 are the general Baptists, 33,600 communicants; the Primitive Baptists, 102,311; Primitive Baptists, colored, 35,076; United Baptists, 13,698. In addition there are several bodies, including the Seventh Day Baptists, the Church of God, and the Saints of Christ. The Northern Baptists have 1,211,426 communicants, with 9715 churches and 8223 ministers. The Southern Baptists have 2,304,724 communicants, 22,795 churches, and 14,625 ministers. Among the general societies under the support of the regular denomination are the American Baptist Foreign Mission Society, which has general charge of the foreign missions; the American Baptist Publication Society, the American Baptist Home Mission Society, which has charge of the home missions, the Women's American Baptist Foreign Mission Society, and the American Baptist Education Society. Missions were carried into nearly all fields in which countries are assigned. There are under the auspices of the denomination 98 colleges, 10 theological seminaries, 96 academies, seminaries, institutions, and training schools.

For several years a movement has been under way to bring about a union between the Baptists and the Free Will Baptists. For a discussion of this, see BAPTISTS, FREE.

The Northern Baptist convention and the South Baptist convention are bodies which have general charge of the different activities of the denomination. Both bodies met in 1913. The Northern Baptists' convention met in May, and addresses were made by Dr. Shailer Mathews, C. F. McFarland, and others. A resolution was passed calling upon the authorities of the Panama-Pacific Exposition to keep it free from commercialized vice. In the meeting in 1912, a movement for raising three million dollars for interests of the denomination was to be on foot, and reports of the progress of this movement were heard at the meeting. The Southern Baptists' convention met also in May. It voted to abandon the international Sunday school series and appointed a commission to enter the social service work. Among other interesting events in the history of the denomination during the year was the observance in Brooklyn of the centennial of the birth of Rev. Adrinon Judson in August. The weekly papers, the *Watchman* and the *Examiner*, were consolidated during the year.

BAPTISTS, FREE. Since October, 1911, a process of amalgamation with the Northern Baptists has been going forward. This is being done on a platform called the "Basis of Union," which was formulated in 1908 by joint committees representing the general conference of Free Baptists and the third national missionary organization of the Baptists—the American Baptist Foreign Mission Society, the American Baptist Home Mission Society, and the American Baptist Publication Society. The first step taken of an official character was the consolidation of home and foreign mission interests. The general conference of Free Baptists retains its legal existence, and held its 35th session at Ocean Park, Me., on July 15-18, 1913. It has, however, transferred its missionary and general denominational activities very largely to the three Baptist societies named above. In the different States, the union of State organizations has progressed more rapidly during 1913 than in any previous year. In the following States, union in some practical form has already been accomplished—Rhode Island, Vermont, New York, Wisconsin, Iowa, Minnesota, and California. Statistics which show a falling off in numbers of the Free Baptists really indicate the result of this union with the regular Baptists. The denomination in 1913 had 65,440 communicants, 1110 churches, and 805 ministers. See also Baptists, and Religious Denominations and Movements.

BAR ASSOCIATION, American. The annual meeting of the association was held in Montreal on August 31, 1913. The association had as its guest Viscount Haldane, the lord chancellor of Great Britain. On September 1, Chief Justice White delivered a speech of welcome to Lord Haldane, to which he replied in a notable address. The association was welcomed to Montreal by Mr. Borden, premier of Canada. Among the important addresses made were those by F. B. Kellogg, on the treaty making powers of the United States, and by former President Taft on the selection and tenure of judges. A resolution was passed commending President Wilson's policy in relation to Mexico. Mr. Taft was elected president of the association for 1913. The association held a joint session of the American Institute of Criminal Law and Criminology. The secretary of the association is George Whitelock, and the treasurer F. E. Wadhams. The membership in 1913 was about 7500.

BARBADOS. A British colony; one of the Caribbee Islands, with an area of 166 square miles and a population (1911) of 171,892. Bridgetown is the chief town and port, with (1911) 16,648 inhabitants. Sugar-cane is cultivated on about 64,000 acres; the number of sugar mills in operation in 1911 was 330, with an output for the year of 23,524 hogsheads of sugar and 84,887 puncheons of molasses (39,899 and 77,722 in 1910). Cotton export to the United Kingdom in 1911, 740,269 lbs., valued at £43,182. There is a railway (28 miles) from Bridgetown to St. Andrew. Imports and exports for the year 1911 were valued at £1,539,710 and £1,005,931 respectively (£1,345,194 and £1,088,830 in 1910). Revenue and expenditure (1911-12), £221,906 and £215,697 (£213,298 and £211,949 n 1910-11). Tonnage entered and cleared, 3,475,511 (2,620,223 British). Customs revenue (1911-12), £131,683. The debt, March 31, 1911, was £422,900 (sinking fund, £90,775). Sir Leslie Probyn was governor in 1913.

BARBUDA. See Antigua.

BARCA. See Tripoli.

BARGE CANAL. See Canals.

BARLEY. The barley production of the world in 1913 was estimated at 1,450.000,000 bushels, or about equal to the production in 1912. The United States produced about 50,000,000 bushels less than 1912, but this shortage was offset by increased yields in several of the principal barley producing countries and notably in Russia. The leading countries, exclusive of the United States, and their estimated yields were as follows: Russia 500,000,000, an increase of about 35,000.000 bushels as compared with the preceding crop, Germany 161,000.000 bushels, British India 105,000,000, Japan 95,000.000, Austria 83.000.000, Hungary 78,000,000, United Kingdom 68.000.000. Spain 64,000,000, and France 50.000 000 bushels These countries with the United States produce the bulk of the world's barley supply. Turkey also ranks high as a barley producer, but owing to unsettled political conditions reliable data on the crop of 1913 are not available. China, which also devotes a relatively large acreage to the crop, does not publish data regarding it. With the exception of drouth in the United States weather conditions in the different countries were generally favorable, although in parts of southeastern Europe heavy rainfall during harvest reduced the quality of the grain by injuring its color.

The United States produced 178,189,000 bushels on 7,499,000 acres, as compared with 223,824,000 bushels on 7,530,000 acres in 1912. The average yield per acre in 1913 was 23.8 bushels and in 1012, 29.7 bushels. The reduction in total production as well as the lower average yield per acre were due to the severe drouth in the Mississippi Valley States, where the crop is largely grown. In some sections the crop was only one-third of normal. Of 34 States reporting yields, the following, leading in production, produced the larger portion of this year's crop: Minnesota 34,800,000 bushels, California 33,150,000, North Dakota 25,500,000, Wisconsin 18,125,000, South Dakota 16,765,000, and Iowa 10,000,000 bushels. Only three States had over 1,000,000 acres in barley—Minnesota, 1,450,000 acres, and California and North Dakota each 1,275,000 acres. The average yield per acre ranged from 8 bushels in Kansas to 42 bushels in Idaho. The farm price December 1, 1913, was 53.7 cents per bushel, as compared with 50.5 cents on the same date the year before. On this basis the production of 1913 was valued at $95,731,000 and the crop of 1912, $112,957,000. The average price for the year 1913 was 55 cents per bushel and the average price for the past 5 years was 60 cents per bushel.

BARNARD COLLEGE. See Columbia University.

BARNES, William. An American lawyer and insurance specialist, died February 23, 1913. He was born at Pompey, N. Y., in 1824, and was educated at Manlius Academy. In 1846 he was admitted to the bar and for many years he was special counsel for the banking department of the State. From 1860-70 he was superintendent of insurance of New York State. In 1872 he was appointed by General Grant a delegate to the International Statistical Congress at St. Petersburg. He was special counsel for the city of New York in many important cases, and he superintended the compilation of several volumes of the insurance statistics, and was editor of the first New York State valuation tables and condensed insurance reports. He was the father of William Barnes, Jr., one of the Republican political leaders of New York State.

BARNETT, Samuel Augustus. An English clergyman and social worker; died June 17, 1913. He was born in Bristol, England, in 1844, and was educated privately and at Wadham College, Oxford. In 1872 he was appointed vicar of St. Jude's White Chapel, a post which he held for 22 years. A few years after he had settled in this parish, a study of the condition of the poor, conducted by Edward Dennison and others, began to excite interest among philanthropists. Canon Barnett became one of the most enthusiastic workers in this movement, and was one of the chief supporters of Arnold Toynbee. He was one of the most prominent among those who were endeavoring to better the condition of the poor in London. After the death of Toynbee, a number of his friends founded Toynbee Hall in his memory, and at this Barnett became the first warden. He retained this post until 1906. Toynbee Hall was the first example known of the institution or university settlement, and Mr. Barnett carried on its work with great success. In 1893 he was made canon of Bristol, and in 1906 was transferred to Westminister. His published writings include *Practicable Socialism* (in collaboration with Mrs. Barnett, 1893); *The Service of God* (1897); *Religion and Progress* (1907); *Towards Social Reform* (1909); *Religion and Politics* (1911).

BAROTSELAND. See RHODESIA.

BARTON CABINET. See FRANCE, *History*.

BASEBALL. The Philadelphia American League team, known as the Athletics, in 1913 for the second time in three years captured the highest honors in baseball. The New York National League team, the Giants, for the third successive year won the pennant in their league, but were wholly outclassed in the series with the Athletics for the world's championship, winning only one game of the five played. The total attendance at the world's series was 150,992 and the receipts aggregated $325,980. A composite score of the games shows that the Athletics both outbatted and outfielded the Giants. The score of each contest follows: Philadelphia 6, New York 4; Philadelphia 0, New York 3; Philadelphia 8, New York 2; Philadelphia 6, New York 5; Philadelphia 3, New York 1.

In the early part of the National League race Philadelphia and Brooklyn played excellent ball and it was not until July that the Giants went to the front. The final standing of the clubs in the National League was: New York won 101, lost 51; Philadelphia won 88, lost 63; Chicago won 88, lost 65; Pittsburgh won 78, lost 71; Boston won 69, lost 82; Brooklyn won 65, lost 84; Cincinnati won 64, lost 89; St. Louis won 51, lost 99.

The Philadelphia Athletics had little trouble in gaining the American League pennant. The only team to afford them any serious opposition was the Washington. Cleveland made a good showing during the first part of the race but injuries to valuable players soon put the team out of the running. The Boston Red Sox, winners of the world's champoinship in 1912, had to be contented with fourth place. The standing of the American League clubs follows: Philadelphia won 96, lost 57; Washington won 90, lost 64; Cleveland won 86, lost 66; Boston won 79, lost 71; Chicago won 78, lost 74: Detroit won 66, lost 87; New York won 57, lost 94; St. Louis won 57, lost 96.

The leading pitcher of the National League as based on the average number of runs scored per nine-inning game was Mathewson of the New York Giants, his average being 2.06. In the American League Johnson of the Washington team won 36 out of 43 games and allowed an average of only 1.09 runs per game. The leading batter of the National League was McDonald of Cincinnati and Boston, his average being .365. Tyrus Cobb of Detroit again won the batting laurels in the American League with the magnificent average of .390.

Noteworthy events in major league history in 1913 were the election of Governor John K. Tener of Pennsylvania as president of the National League and the organization of the Baseball Players Fraternity.

Two teams made up principally of players from the New York Nationals and the Chicago Americans started on a trip around the world in November.

The pennant winners in the more important minor leagues in 1913 were: International, Newark; American Association, Milwaukee; Southern, Atlanta; Tri-State, Wilmington; Eastern Association, Hartford; Pacific Coast, Portland; New England, Lowell.

Yale had the best team among the colleges, although she lost the series with Harvard and was defeated by Pennsylvania and Williams. Brown was generally ranked second and Harvard third, although there is no satisfactory method of determining the college championship, many of the best teams failing to meet each other. The scores in Yale's principal games were: Yale 2, Harvard 0; Yale 3, Harvard 4; Yale 5, Harvard 6; Yale 0, Princeton 0; Yale 5, Princeton 4; Yale 4, Pennsylvania 5; Yale 13, Pennsylvania 5; Yale 4, Pennsylvania 2; Yale 4, Brown 2; Yale 6, Brown 4; Yale 4, Cornell 1; Yale 3, Cornell 0; Yale 18, Georgetown 1; Yale 3, Georgetown 0; Yale 7, Holy Cross 4; Yale 6, Holy Cross 0; Yale 0, Williams 2; Yale 6, Columbia 4; Yale 4, Virginia 2; Yale 14, Amherst 1; Yale 6, Trinity 0; Yale 5, Vermont 0.

Brown defeated Tufts 3-0; Colgate 14-2; Princeton 8-1; Harvard 9-4; Colby 8-2. Brown was defeated by Yale 2-4, and 4-6; and by Holy Cross 0-5.

Harvard defeated Yale 4-3 and 6-5; Princeton 7-0; Pennsylvania 3-1; Amherst 5-0; Williams 5-1; Syracuse, 3-0; Columbia 6-4; Bowdoin 6-4; Maine 7-3; Vermont 4-1. Harvard was defeated by Yale 0-2; U. S. Naval Academy 7-9; Colby 2-5; Lafayette 2-4; Holy Cross 5-7; Brown 4-9; Pennsylvania 3-4.

Princeton defeated Georgetown 4-0; Rutgers 9-3; Villanova 5-4; Columbia 7-6; Cornell 7-1 and 11-4; Williams 8-3; Lafayette 3-1. Princeton was defeated by Yale 4-5; Harvard 0-7; Georgetown 1-7; Pennsylvania 9-12 and 0-2; Brown 1-8 and 1-3; Virginia 1-6 and by Amherst 0-6.

BASKETBALL. Cornell in 1913 succeeded in wrestling the supremacy in basketball from Columbia which had held the intercollegiate championship for two years in succession. Cornell lost only one league game out of eight played. The standing of the other teams was: Princeton won 4, lost 4; Pennsylvania won 3, lost 5; Dartmouth won 3, lost 5; Columbia won 3, lost 5. Wesleyan, although not a member of the league, made an excellent showing and her team is entitled to rank second among the Eastern colleges. The championship of the Middle Western Conference League was won by Wisconsin, which went through its schedule without defeat. The records of the teams follow: Wisconsin won 11, lost 0; Northwestern won 8, lost 4; Illinois won 7, lost 5; Purdue won 6, lost 5; Ohio State won 5, lost 5; Minnesota won 2, lost 8; Iowa won 1, lost 7; Indiana won 0, lost 10.

The A. A. U. championship was won by the Armour Square Five of Chicago. The Carlton Club of Hoboken, N. J., and the Winton Club of West Hoboken tied for first place in the Hudson County Professional League of New

Jersey, each team winning 26 games and losing 9.

BASUTOLAND. A British South African dependency administered under the control of the governor-general of the Union of South Africa (q.v. area, etc.), though not a part of the Union. Masern is the capital, with 861 native and 500 white inhabitants (estimated). For trade purposes Basutoland combines with the Union. Revenue (1910-11), £145,500; expenditures, £134,888. Total area of the country, 11,716 square miles; population (1911), 404,507 (1396 whites). Resident commissioner (1913), Herbert Cecil Sloley.

BATHS. See Hydrotherapy.

BATHS, Municipal. The International Congress on Public and School Baths, which was held at Scheveningen, the Hague, in August, 1912, stimulated the general awakening to the need of public baths in both Europe and America, and at the same time proved how widespread was the movement. According to the report of the congress, published in 1913, three hundred delegates from eleven countries were present, and although the United States was not officially represented, there were three delegates from the American association for promoting hygiene and public baths and others from several American cities. The progress of the movement in the United States was summarized by William Paul Gerthard, who presented statistics tending to show that New York, Chicago, Boston, and Baltimore had done most for city baths. A description was presented of the portable baths which were introduced by the city of Baltimore in 1908. It aroused much interest and the municipality of the Hague at once voted to try the experiment.

The portable baths just mentioned have proved such a successful innovation in Baltimore and were being so widely copied by other American cities that the history of their development and operation is of interest. The following description is taken from the reports of the Baltimore bath commission. Late in the summer of 1908 the commission decided to establish, as an experiment, a cheap portable bath. Accordingly, in a tent, on a vacant lot, a temporary connection with the city water mains was made and within a few days cold shower baths were given to about 500 boys and men. The tent was divided by muslin strips into three sections; the office, dressing room, and bathroom proper. It was provided with a rough floor which had open spaces in the bathing section, through which the water ran back to the nearby gutter. Overhead was erected a wooden frame carrying water pipes and four shower heads regulated by a valve within the reach of each bather. The entire plant cost about $150. So great was the popularity and usefulness of the bath-tent that the following season a more ambitious scheme of portable bathhouses, which has been followed each succeeding summer, was adopted. The enclosures are of wood and galvanized iron. A small lean-to contains an egg-shaped coal stove with a water jacket for heating water. Nearby is a 100-gallon storage tank. The interior of the bathhouse is divided into seven compartments. The house is collapsible into about seventy-five sections, each about five by eight feet, easily handled by two men. The entire work of setting up takes three men four days.

Another style of portable house has been adopted which is not collapsible, but is erected in two parts, each about nine by fourteen feet, joined together by bolts. The labor of setting this house up is much less than of the other and it has proved quite as satisfactory. Blue print drawings of those three types of portable baths will be sent to any city by the Baltimore bath commission on application. Portable baths are especially valuable for play grounds, camps, and other temporary gatherings and also as a permanent substitute where more elaborate bathing facilities are unattainable.

The Baltimore bath commission has also served as a model in several other particulars and so constant have been the inquiries from other municipalities as to its methods that it has established an educational department and its members are prepared to give lectures on municipal baths to meet the demand from improvement societies, schools, and colleges.

BATTERIES. See Electric Batteries.

BATTLESHIPS. There was apparently no diminution in the number and size of battleships under construction during 1913 by the leading naval powers of the world. The comparative tables printed under Naval Progress (q.v.) indicate the relative strength of the powers in the struggle for sea supremacy, while reference here will be made to special features of design, construction, and armament.

Displacements. Displacements were still increasing. The two American battleships of the *Pennsylvania* class were to have a mean trial displacement of 31,400 tons. The service displacement of the English *Queen Elizabeth* class was not to be much less, as their construction-displacement was put at 28,500 tons, and this is, according to the British usage, several thousand tons less than the actual service displacement. The displacement of some of the largest ships building or proposed in 1913 were:

Germany—29,000 tons, estimated (T)
Italy —29,510 tons (*Morosini* class)
Japan —30,000 tons (*Fuso* class)
Russia —32,500 tons (*Borodino* class)
England—26,500 tons, estimated (*Royal Sovereign* class, 1913 programme, said to displace about 2000 tons less than the *Queen Elizabeth*).

Distribution of Heavy Guns. All navies had adopted the centre line turret; but a great diversity existed in the method of gun distribution. Twin and triple turrets were sometimes used alone, and sometimes in combination; the French *Normandie* class had three quadruple turrets, while the *Tourville* class was to have four quadruple turrets. The return to a powerful intermediate battery had become general; and as this battery, on account of the increased range of the torpedo, must serve to repel attack by torpedo craft, the torpedo defense batteries proper (guns of small calibre) were gradually disappearing, as their efficiency in battle seemed very doubtful in view of their generally unprotected positions. On the other hand guns for repelling the attack of airships had been introduced into most of the fleets.

Various Features. Frahm rolling tanks and Gyro compasses were successfully introduced in various navies.

Launching weights continued to increase; that of the *Warspite* was 12,000 tons; that of the *Tiger*, 13,000 tons.

The use of oil fuel in combination with coal had an increased extension, and for the newest American ships of all classes oil alone was provided.

Speed. There was no noteworthy increase in any class of ship. The speed of battleships remained about the same, and even for the most recent, averaged about 21 knots. The five English ships of the *Queen Elizabeth* class were an exception; they were to make 25 knots and thereby acquire the character of battle cruisers, whose rôle this series of battleships is naturally designed to take as the fast wing of the battle line. The first lord of the British admiralty said in July that there was no intention to raise the ordinary average speed of the line of battle, which remains at the maximum of 20 to 21 knots.

Armament. The following paragraphs summarizing the development of battleship ordnance indicate the progress being made in the various navies.

Austria. The second dreadnought division consisting of 3 ships to replace the obsolete *Monarch* class, and 1 to replace a ship of the *Hapsburg* class, to be commenced early in 1915, were to have a main armament of ten 14-inch guns. The displacement of these battleships is 25,000 tons; speed 23 knots.

England. Each of the first 10 dreadnoughts was armed with ten 12-inch guns, the 13.5-inch gun being adopted in 1909. The battleships of the 1912 programme were to have eight 15-inch guns, and also sixteen 6-inch. The return to a special torpedo defense battery of twelve 3-inch guns was worthy of note. The 6-inch guns of the *Queen Elizabeth* are well protected by armor; and the forward guns are arranged in echelon from the centre line to the ship's side so as to give them ahead fire. It was said that the battleships of the 1913 programme (*Royal Sovereign* class) were to have ten 15-inch guns, with the same intermediate battery as the *Queen Elizabeth.* All the latest ships, commencing with the *Benbow* class were to have 8 torpedo tubes instead of 5.

France. The progress of France can best be shown in tabular form:

	Broadside			Displacem't
Class	Guns		Lbs.	(Tons)
Jean Bart	10—12″	=	9,700	23,095
Bretagne	10—13.4″	=	11,900	23,117
Normandie	12—13.4″	=	14,280	24,830
Tourville	16—13.4″	=	19,040	29,500

The number of 5.5-inch guns had increased from twenty-two in the *Jean Bart* and *Bretagne* classes, to twenty-four in the *Normandies*, and to twenty-eight in the *Tourvilles.* No torpedo defense guns of smaller calibre were provided after the *Jean Bart* class. Eighteen-inch torpedoes are still used. The four battleships of the 1915 programme were to be named *Tourville, Lyon, Lille,* and *Duquesne,* and were to carry a new 13.4-inch gun, firing a new projectile with great initial velocity.

Germany. Germany held that the 11 and 12-inch Krupp guns were equal to the English 13.5-inch and 14-inch guns of the same date, for all practical battle purposes. After England adopted the 15-inch gun, Germany was forced to take the same step; and decided to give the two German battleships of the year 1913 the same armament as that of the five English ships of the year 1912, that is, eight 15-inch and sixteen 6-inch. The torpedo armament of the latest ships consisted of 20-inch torpedo tubes.

Italy. The first of Italy's new type battleships (Ferrati's plans) was to be laid down in January, 1914. Its armament was eight 15-inch guns, in four axial turrets, twenty 6-inch guns in casements, and twenty 3-inch guns. The gun trials of the *Dante Alighiere* (12-inch in four triple turrets) were officially reported as entirely satisfactory—no damage was done to ship, guns, or mounts.

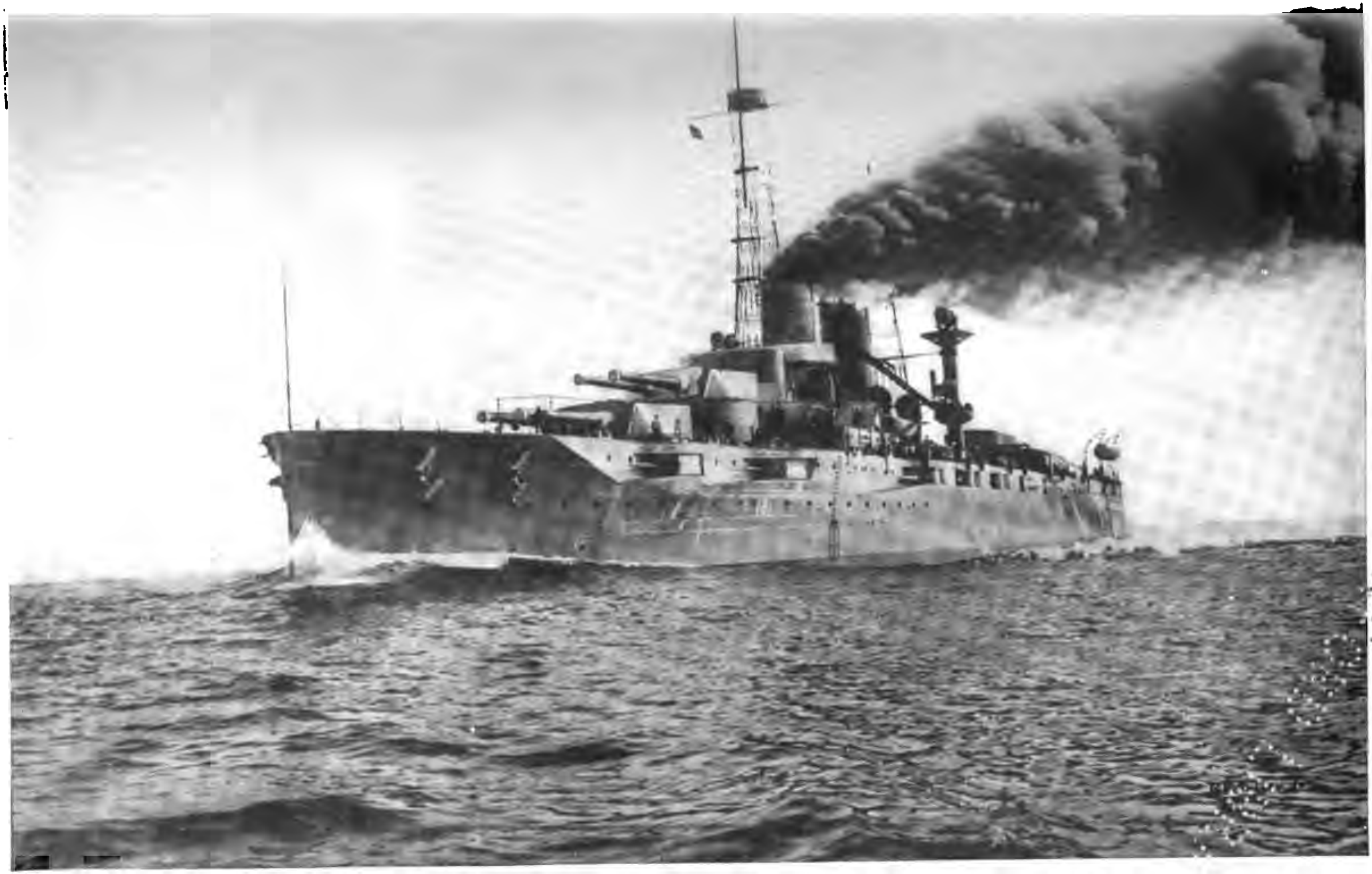
Japan. The four Japanese battleships of the *Fuso* class were to be armed with twelve 14-inch guns, sixteen 6-inch guns, and eight 21-inch torpedo tubes.

United States. The United States retained the 14-inch gun for the *Pennsylvania* class, which carry twelve; while the *Oklahoma, Nevada, Texas,* and *New York* carry ten; with an intermediate battery of twenty-two 5-inch guns; and four 21-inch submerged torpedo tubes.

Armor. Armor for battleships in 1913 had increased beyond the thickness of the previous year, and was from 13-inch to 15-inch in thickness, a result of the increase in gun calibre. Against the attack by bombs from aircraft, the decks and smoke-pipes of the large new battleships were being given armor protection.

Complements naturally increased with increased displacements; and would reach 1300 men in the Italian battleship to be laid down in January, 1914.

Battle Cruisers. It happened that each of three great naval powers launched a battle cruiser within a few days of each other. The British battle cruiser *Tiger* was launched by Messrs. John Brown and Company at Clydebank on December 15, 1913. She was the last battle cruiser in hand, as vessels of the *Queen Elizabeth* type, though faster than all previous battleships, were officially classed as battleships. The *Tiger* was the last of the five armored ships of the 1911-12 programme, and had been building since June 20, 1912. The German *Lützow* was launched at Danzig on November 29, and the Japanese *Kirishima* at Nagasaki on December 1. No official information was given out about these ships, but from press reports it appeared that they were about the same size, or between 27,500 and 28,500 tons displacement, and all were credited with a speed of twenty-eight knots. It may be recalled that this was 10,000 tons and three knots more than the original battle cruisers of the *Invincible* class. The *Kirishima* carried eight 14-inch guns; the *Tiger* eight 13.5-inch guns; and the *Lützow* eight 12-inch guns. The *Kirishima* also carried sixteen 6-inch guns; the *Tiger*, twelve 6-inch; and the *Lützow,* fourteen 6-inch guns. It was reported that the *Kirishima* had eight torpedo tubes, while the British and German vessels were understood to have only five. The *Lützow* was stated to have an 11-inch armor belt, whereas the British and Japanese ships have 9-inch and 10-inch, respectively. Reduced armor protection was a feature of the original battle cruiser design in England; but other powers did not reduce protection to the same extent. In all three ships the secondary guns



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U. S. BATTLESHIP "TEXAS."
THE FIRST AMERICAN SUPER-DREADNOUGHT.

are placed behind armor of a thickness approximating their calibre.

All three vessels were building at private dock yards; and the *Lützow* had been the shortest time on the stocks. She had occupied fifteen months, the *Tiger* eighteen months, and the *Kirishima* twenty-one months. The other most notable feature about Germany's new ship was the reduction of the number of heavy guns to eight. The *Lützow* and *Derflinger*—the latter launched in June, 1913—had eight 12-inch guns, but their predecessors carried ten 11-inch guns. This reduction in numbers in favor of an increase in calibre made them correspond more to the British vessels. Like all earlier battle cruisers in the British navy, the *Tiger* was fitted to burn both oil and coal, and the *Lützow* and *Kirishima* were like her in this respect. The *Tiger* was also, like her predecessors, propelled by turbine machinery, but was the first to have turbines of the Brown-Curtis instead of the Parsons type. Russia adopted the 14-inch gun for the battle cruisers of the *Borodino* class, commenced in 1912 (displacement, 32,500 tons; armament, nine 14-inch guns, twenty-one 4.7-inch guns).

BAVARIA. See GERMANY.

BAVARIAN REGENCY, END OF. See GERMANY.

BAYLES, JAMES COPPER. An American engineer and editor, died May 7, 1913. He was born in New York in 1845 and received a technical education. From 1862-64 he was lieutenant of the United States artillery. In 1865 he became editor of the New York *Citizen*, continuing in this position for two years. In 1868-69 he edited the *Commercial Bulletin*, and from 1870-89 the *Iron Age* of New York. He made a study of electro-metallurgy, microscopic analysis of metals, sanitation, and mechanical hygiene, and wrote much on these subjects. In 1888 he was president of the health department of New York City.

BEANS. See HORTICULTURE, *Plant Breeding*.

BEAUMETZ, DUJARDIN. A French public official and art curator, died September 27, 1913. He was born in Paris in 1852. At an early age he began his political career and served with distinction as under secretary of fine arts under many ministries. In 1889 he was elected a member of the Chamber of Deputies, and in 1912 became a senator. He was under secretary of fine arts at the time the "Mona Lisa" was stolen from the Louvre. The public resentment against him on account of this incident was so great, that he was obliged to resign his office.

BEAUX-ARTS ARCHITECTS, SOCIETY OF. An association formed by the American graduates of the École des Beaux Arts in Paris. It comprises a system of education which includes the establishment in different cities of the United States of ateliers or schools in which instruction in architecture may be obtained. The instruction is based on that given in the École les Beaux Arts, and many colleges and universities throughout the country avail themselves of the programme of the society used in its courses of instruction. Schools are formed in each city by groups of students who wish to carry on the study of architecture. A master or *patron*, whose work is given free, is chosen or appointed, and the school is supported by contributions of the students. Each year the committee on education of the society issues a certain number of programmes which include problems to be worked out by the different schools. These competitions are designated "Class A" and "Class B" competitions. The society awards four prizes: The Warren Prize, offered for general excellence in planning a group of buildings; the Pupin Prize, the gift of Professor M. I. Pupin of Columbia University, offered for decorative treatment of some appliance; the Goelet Prize, the gift of Mr. Robert W. Goelet, for excellence in planning a city block; and the Bacon Prize, the gift of Mr. Robert W. Bacon, for the greatest number of honors obtained in "Class A." Mr. Bacon also offers each year a Paris prize, the winner of which is chosen to pursue his studies in the first class in the École des Beaux Arts, Paris. Regulations providing for this have been adopted by the French minister of public instruction and fine arts. The winner of this prize receives $250 quarterly for two years and a half, dating from his departure for Europe.

BEBEL, FERDINAND AUGUST. A German Socialist leader and writer, died August 13, 1913. He was born at Cologne in 1840 in the artillery barracks where his father was a noncommissioned officer of the army. He learned the profession of lathe turner, but his chief interest was in politics. At the start of his political life he was a Liberal, opposed to the socialistic agitation of Lasalle, who was at that time becoming prominent. A careful reading of Lasalle's writing, however, resulted in his conversion to Socialism in 1865. He became so zealous a Marxian Socialist, that he was soon arrested and put into prison. In 1872 he was again arrested in company with the socialistic propagandist Liebknecht, and both spent two years as prisoners in the fortress of Hubertusburg. Counting this and another term in 1886, he was in prison for a total of fifty-seven months. This time he spent in study, which included self-teaching in Greek until he could read Homer. During his second term in prison, he first thought out his first and most successful book, *Die Frau*, which, with John Stuart Mill's *The Subjection of Woman*, is perhaps the most widely read of books on the woman question. This book was his most successful publication. It was translated into fifteen languages, and had a large sale throughout Germany. After the passage of the Socialist law in 1878, and the extension of the minor state siege to the city of Leipsig, Bebel was forbidden residence in that city. He thereupon sold out his business of carpenter and joiner and devoted himself thereafter to the socialistic propaganda. In this he was so successful that Bismark considered him the arch-enemy of the nation, and threw every obstacle in the way of his speaking and writing. Bebel severely criticized the annexation of Alsace and Lorraine after the Franco-Prussian War, and his frankness in voicing his opinions increased his unpopularity with the ruling powers. He criticized also the exploits of a German army in China, and alleged German atrocities in South Africa. He repeatedly censured the emperor, Wilhelm II., and once intimated that he thought the latter insane. With Dr. Karl Liebknecht and Paul Singer, he founded the Socialist Democratic party in Germany, and for a number of years was its leader. He was a member of the Reichstag from 1867, and was the third and oldest member of that body. In recent years Bebel experienced some differences with other leaders of his party because of his opposition to what he called their opportunism. In turn they denounced him as a dictator and a despot. In spite of aggressiveness, Bebel could at times show moderation. An example of this was in 1906, when he opposed a general strike of the working men, arguing in a temperate speech, that defeat would be certain, and the party would emerge only to find itself under the ban of special legislation. He was an eloquent speaker, and his bitter attacks on the government delivered in the Reichstag always insured a crowded attendance in that body. He had a remarkable influence over the four million persons composing the Socialist party in Germany. In addition to his book on woman, he wrote *Unsere Zeile; Der deutche Bauernkrieg; Christentum und Cocialismus; Die Frau und der Socialismus; Charles Fourier*, and others. See also SOCIALISM, *passim*.

BECHUANALAND. A dependency of the Cape of Good Hope Province in the Union of South Africa (q.v. for area, etc.). Revenue (1911-12), £59,305; expenditure, £65,936. Resident-commissioner (1913), Lieutenant-Colonel F. W. Panzera, who resides at Mafeking, in the Cape province.

BECKE, GEORGE LOUIS. An Australian author, died February 18, 1913. He was born in New South Wales, in 1840. His boyhood and youth were spent as super-cargo and trader in the South Seas. In 1893 he began to write, and his first book, *By Reef and Palm*, was published in 1894. This was followed by *The Ebbing of the Tide* (1896); *His Native Wife* 1896); *Pacific Tales* (1897); *Wild Life in the South Seas* (1897); *Tom Wallis* (1900, 1913); *The Adventures of Louis Blake* (1909); and by other books dealing with life in the South Seas. He had a remarkable gift for depicting graphically the strange life of the South Seas, and his best work has, not without reason, been ranked with that of Kipling and Dawson. In addition to his literary work he devoted considerable time to ethnological studies.

BEDFORD, SIR FREDERICK GEORGE DENHAM. An English admiral, died January 30, 1913. He was born in 1838, and entered the navy as a cadet in 1852. During the Crimean War he served in the Black Sea. He became a lieutenant in 1859, a commander in 1871, and a captain in 1876. In 1886 he was appointed in command of the training ship *Britannia*, where he remained for three years. He then became junior sea lord of the admiralty; and in 1891 rear-admiral. The following year he left the admiralty to become commander-in-chief of the Cape of Good Hope and west coast of Africa station. During his tenure of this office he led several expeditions against slave-raiding and rebellious native chiefs on the west coast. In 1895 he returned to England to take up the appointment of second sea lord. A few years later he was promoted to be rear vice-admiral. In 1899 he was appointed commander-in-chief of the North American and West Indies station, where he served until he was made governor of West Australia, in 1893, which post he filled for six years. On his retirement in 1909 he was made a G.C.M.G. He was the author of several useful naval hand books, including *The Sailors' Pocket Book; The Sailors' Hand Book;* and *The Sailors' Ready Reference Book.*

BEER. See LIQUORS.

BEILISS, MENDEL. See JUDAISM.

BELGIAN CONGO. See CONGO, BELGIAN.

BELGIAN EXPOSITION. See EXPOSITIONS.

BELGIAN HARBOR IMPROVEMENT. See DOCKS AND HARBORS.

BELGIUM. A constitutional monarchy bordering on the North Sea; one of the smaller European states. Capital, Brussels.

AREA AND POPULATION. The total area is 29,541 square kilometers, or 11,371 square miles. The total legal population, according to the census of December 31, 1910, is 7,423,784 (6,693,548 in 1900), an increase of 10.91 for the decade. Of this number, 2,833,334 speak French only, 3,220,662 Flemish, 31,415 German, 871,288 French and Flemish, 74,993 French and German, 8652 Flemish and German, 52,547 all three, 330,893 (including children under two years of age, and foreigners of other nationalities) none of these languages. The males numbered 3,680,790, and the females 3,742,994. The *de facto* population was 7,416,454 (3,677,801 males, 3,738,653 temales). Estimated in 1911, 7,490,411. Marriages in 1911 numbered 59,370, births 171,802, deaths 122,843, immigrants 41,062, emigrants 33,007. The population of some of the urban communities December 31, 1911, is as follows: Antwerp 308,618 (with suburbs 407,773), Brussels 176,947 (737,432), Liége 167,676 (243,865), Ghent 166,715 (211,081), Malines 59,191, Bruges 53,484, Ostend 42,638.

EDUCATION. A law is about to be introduced rendering primary education compulsory. Schools are maintained by communal taxation with provincial and state grants. Many additional schools are under ecclesiastical control, Roman Catholic predominating. In 1911 there were 934,830 children and 246,292 adults attending primary, and 275,911 children attending infant schools. There are state and numerous private secondary institutions, and special, technical, and fine arts schools. State universities, Ghent and Liége; free, Brussels and Louvain.

DOMESTIC ANIMALS. These numbered in Belgium, December 31, 1912, as follows: 262,709 horses (261,967 in 1911), 1,880,747 cattle (1,812,191), 1,348,514 swine (1,229,428).

AGRICULTURE. The number of persons engaged in agricultural pursuits in Belgium constantly decreases; in 1864, 24.98 per cent. were so engaged; in 1880, 21.77; in 1895, only 18.79. The type of agriculture practiced is, however, highly intensive. The agricultural area under crops (1895) is 1,916,690 hectares, under forests 521,495, uncultivated 169,329. Of the cultivated area in 1911, there were 744,782 hectares under cereals, 13,575 under legumes, 74,348 under industrial plants, 232,726 under root crops, 386,472 under forage plants, 139,996 under short-season crops sown after removal of main crop. The yield in detail of important crops in 1911 follows: 4,285,238 quintals of wheat, 6,187,858 of rye, 6,277,629 of oats, 967,732 of barley, 385,915 of spelts, 17,715,132 of industrial plants, 15,067,332 of sugar beets, 31,638,805 of forage beets, 27,469,946 of potatoes, 17,934,805 of forage plants (including sown meadows). The area under principal crops and yield, 1912 actual, and 1913 provisional figures, with average quintal per hectare yielded in 1912, are shown in the following table:

	Hectares		Quintals		Qs.
	1912	1913	1912	1913	ha.
Wheat	160,526	159,494	4,177,049	4,093,884	26.0
Rye	263,189	259,491	5,413,697	5,424,898	20.6
Barley	34,121	34,032	925,901	902,630	27.1
Oats	262,191	271,694	5,092,814	6,506,313	19.4
Flax Seed Fibre	21,662	23,133	130,553	104,098	6.0
Tobacco	4,017	4,023	100,288	96,100	25.0
Sugarbeets	61,883	52,419	17,303,440	14,250,000	279.6

Mining and Metals. The abundance of cheap fuel makes practicable an extensive metallurgical industry, for which ores are imported, the output from the home metallic mines having steadily declined since 1880. The table below shows the number of coal mines in operation, area covered (in hectares), production (in metric tons), and value (in thousands of francs) for representative years:

	No.	Ha.	Tons	1000 fr.
1880	164	143,837	16,886,698	169,680
1890	134	137,661	20,365,960	268,503
1900	118	140,286	23,462,817	408,470
1910	133	168,717	23,916,560	348,877
1911	127	172,069	23,053,540	340,279

The output from steel and iron works, etc., is shown below for two years in metric tons, with the value in thousands of francs:

	M. Tons		1000 fr.	
	1910	1911	1910	1911
Pig iron	1,852,090	2,046,280	120,161	133,664
Mfd. iron *	452,150	421,650	39,494	37,487
Steel	4,500,920	4,974,960	452,460	511,241
Zinc	181,745	198,230	103,541	124,009
Lead	40,715	44,308	13,464	15,572
Silver †	264,655	252,720	27,754	26,689

* Output includes half worked and finished products; the value relates to the finished product only. † From lead.

Manufactures. The manufacturing industries occupy 1,102,244 (1896) persons (1,837,223 men, 265,021 women), and are the chief source of the nation's wealth. Small establishments are in the majority, and house industries are of considerable importance. The textile industry comprehends the manufacture of linen, woolens, and cottons. There were eighty-nine sugar factories in operation in 1911, with an output of 234,764 metric tons; and twenty-one sugar refineries, output 121,226 tons. The output of the glass factories was valued in 1900 at 65,912,000 francs.

Commerce. Although the balance of trade in Belgium would be technically classed as adverse, the excess of imports over exports is actually evidence of the country's commercial and financial expansion, in that it represents returns from foreign investment. A table showing general and special commerce for three years follows, with values in thousands of francs:

	1900	1910	1911
Imports (gen.)	3,594,400	6,551,700	6,806,400
Imports (spec.)	2,215,800	4,265,000	4,508,500
Exports (gen.)	3,297,500	5,694,600	5,879,300
Exports (spec.)	1,922,900	3,407,400	3,580,300

In the next table are given some of the principal exports for home consumption and exports of domestic produce; values in thousands of francs for 1911:

Imports	1000 fr.	Exports	1000 fr.
Cereals, etc.	698,200	Woolens	346,700
Wool	382,500	Iron & steel	267,100
Hides	192,200	Machinery, etc.	221,700
Seeds	187,200	Cereals, etc.	206,600
Cotton	170,500	Hides	161,100
Timber	161,400	Zinc	112,000
Chem. products	127,700	Seeds	111,400
Rubber	125,400	Flax	109,400
Iron & steel	106,800	Linen thread	103,600
Resins, etc.	104,300	Diamonds †	99,000
Diamonds *	98,400	Glassware	87,900
Flax	97,200	Cottons	79,200

* Uncut. † Cut.

Some of the principal countries of origin and destination in the 1911 trade are given below, with values of the imports and exports in millions of francs:

	Imps.	Exps.		Imps.	Exps.
Germany	602.1	959.1	Russia	318.1	66.9
France	557.2	659.2	Netherlands	297.9	352.1
Great Brit.	433.7	476.1	Argentina	272.3	83.7
U. States	341.4	114.0	Brit. India	267.6	35.0

Communications. Total length of railway lines in operation December 31, 1912, 4719 kilometers (4369 operated by the state). Passengers carried in 1911, 180,840,189 by state, and 18,049,557 by private lines. Fatalities, 164; persons injured, 1131 (of these, 14 killed and 438 injured, were passengers). Telegraph lines (1912), 7975 kilometers; wires, 43,547; stations, 1659; revenue, 6,623,305 francs; expenditure, 5,074,899. Post offices, 1708; receipts, 43,419,097; expenditure, 23,912,335. The merchant marine, December 31, 1912, contained 105 vessels, of 181,637 tons (97 steamers, of 174,021 tons). Vessels entered in the 1911 trade, 11,106, of 15,907,359 tons; cleared, 11,122, of 15,896,915 tons. Merchant marine (1911): 93 steam vessels, of 160,515 tons; sailing, 8, of 5905. Towards the end of the year 1913 a report was presented to parliament by a special commission appointed to consider the question of railway reform in that kingdom, as the state management of the railway lines was almost unanimously considered a failure, resulting in poor service and heavy deficits. The plan proposed by the commission was that the ministry of railways should be replaced by an independent organization to operate and manage the railways on behalf of the state, this organization consisting of a number of directors being supervised by a commission appointed partly by the chamber and partly by the state. It was proposed that the directors, who must be entirely independent of political influence, and not occupying any state office, should be chosen by the king for a period of six years, and be held personally responsible for any irregularity in management. At the same time, practically unlimited powers would be given to such a board. The proposal met with considerable favor in Parliament, as it was deemed desirable to supplant in some way the state operation of the railways. The Belgian railway administration was negotiating with the Dutch state railways regarding the completing of an extension of the line to Sittard, across the German territory.

Increase of traffic on the Belgian railways was indicated by the fact that on January 1, 1900, the number of freight cars was 60,548, and on December 31, 1913, 94,097. It was proposed to construct a new line from Heppen, on the line from Moll to Diest, to a point on the Meuse River, near the Dutch frontier. This would cross the coal fields in the new mining district of Limburg, and as there were to be no level crossings the erection of large bridges over other railways would be a feature of the construction.

Finance. The monetary unit is the franc (1 franc=19.3 cents). In the following table ordinary (A) and extraordinary (B) revenue and expenditure are displayed for comparative years:

	1900	1909	1910
Revenue A	494,105,778	645,107,015	682,487,132
" B *	48,672,331	150,109,498	132,917,647
Total	542,778,104	795,216,513	815,404,779
Expenditure A	479,055,783	634,450,367	672,954,146
" B	95,102,409	151,747,457	156,502,101
Total	574,158,192	786,197,824	829,456,247

* Including loans.

Ordinary revenue (1911), 695,252,000 francs; extraordinary, 1,019,000 (not including loans). The 1913 budget estimates the ordinary revenue at 757,654,649 francs, including revenue-earning administrations 401,521,250 francs, excise 87,396,500, customs 67,270,650, direct taxes 75,042,000, registration 86,353,000; domains, dividends, interest, etc., 29,274,629; repayments 9,144,124. Expenditure 770,347,437 francs: 356,043,784 francs for railways, 209,371,719 debt charge, 78,041,147 war, 42,373,029 arts and sciences, 49,744,944 marine, posts, and telegraphs, 38,035,607 agriculture and public works, 27,357,500 industry and labor, 31,882,733 justice, 25,312,150 finance, 9,501,800 gendarmerie, 7,901,805 interior, 5,543,050 civil list, 4,990,686 foreign affairs, 2,826,000 repayments, 1,421,483 colonies.

The total consolidated debt was, at end of 1911, 3,734,354,038 francs; floating debt, 201,565,500—total, 3,935,919,538 francs.

Government. Belgium is a constitutional, representative monarchy, hereditary in the male line; and in the event of failure of male issue, the reigning monarch appoints his successor, subject to approval by the chambers. This was the procedure in the case of the late Leopold II. who, dying without male heirs, December 17, 1909, was succeeded by his nephew, Albert Leopold. Heir-apparent, Leopold Philippe, born November 3, 1901. The legislative power rests in the king and a legislative body composed of a senate and a chamber of deputies. A responsible ministry of eight members is appointed by the king. As constituted November 12, 1912, the ministry was as follows: C. de Broqueville, premier and minister of war; H. C. de Viart, justice; J. Davignon, foreign affairs; P. Berryer, interior; P. Poullet, arts and sciences; M. Levie, finance; G. Helleputte, agriculture and public works; A. Hubert, industry and labor; A. van de Vyvere, railways; P. Segers, marine, posts, and telegraphs; J. Renkein, colonies.

Army. The reorganization of the Belgian army was further affected by a law promulgated on June 19, 1913, which substituted new conditions for those established by the law of December 14, 1909. It increased the effective war strength of the kingdom and, at the same time, changed the conditions of recruitment. The effective strength of the army, which had been fixed at 180,000 men, would be raised so that by 1926 there would be 251,000 men additional available for service, and a war army of 340,000 available men. On a peace footing the new law would give an establishment of 57,886 men, with six army divisions posted at Ghent, Antwerp, Liége, Namur, Mons, and Brussels. With one class of recruits only with the colors, as is usual for the greater period of the year, the effective troops would be as follows: Infantry, 2110 officers, 31,533 men; cavalry, 389 officers, 7661 men; field artillery, 501 officers and 8113 men; garrison artillery, 267 officers and 4050 men; engineers, 187 officers and 2363 men; transport, 119 officers and 643 men. The effective strength of a division would be 6500 men for each of four divisions, and more than 8000 for each of the other two. On a war footing the field army would consist of six divisions and one cavalry division. Four divisions will make a total of 100,000 men, and two divisions, Liége and Namur, of 32,000 men each, will make a total of 64,000, so that including the cavalry division, the total field effective would be 170,000, but these numbers do not include the first line reserve and the militia to make up the losses suffered in war, so that an effective strength of 200,000 was to be reckoned on.

For the rule of one son in a family established by the law of 1909, a system of "generalized service" is substituted, and the annual contingent was fixed at 49 of every 100 enrolled as available, and was raised from 21,000 men, exclusive of 2000 special volunteers, to 33,000 men, also exclusive of 2000 special volunteers. Service is for from fifteen to twenty-one months with the colors in the regular army, according to the arm, and is then followed by eight years on unlimited leave with occasional periods of service and trial. This is followed by five years in the reserve, while all able-bodied men, not otherwise provided for, are enrolled in the Garde Civique, under the minister of the interior in times of peace, and intended chiefly for the maintenance of public order. This force included 45,000 men considered active, and 100,000 men on the rolls as non-active.

M. de Broqueville, minister for war, stated in the Senate late in the year 1913, that in December, 1917, Belgium would be able to place on a war footing an army of 168,331 men, exclusive of officers, and 87,400 reserve and fortress troops.

HISTORY

Electoral Reform Agitation. The central feature of Belgian politics in 1913 was the struggle for universal equal suffrage, "one man, one vote." As noted in the preceding Year Book, the system of plural voting was the especial *bête-noir* of the Socialist and Liberal opposition. For twenty years it had been in operation, ever since April 18, 1893, when universal suffrage modified by the plural vote was established, and six times it had been attacked. The law against which these repeated assaults were directed provided that all male citizens over twenty-five years of age should vote; but those who paid a house tax of five francs a year, or owned 2000 francs in real estate, or enjoyed an income of 100 francs a year from Belgian funds, had two votes each; and those who possessed certificates of higher secondary instruction, or held office, or followed a profession, had three. By means of their plural votes 704,549 men could outvote 993,070 others; for in the last elections 395,866 voters could cast two ballots each, 308,683 could cast three, and 993,070 could cast one each: the two-vote and three-vote men together, although constituting less than 42 per cent. of the electorate, could cast almost 64 per cent. of the total number of votes. The Socialists, being recruited from the one-vote class, could not hope to outvote the upper classes without a reform of the franchise. But in order to amend the electoral law, it would be necessary to revise the constitution, and that would require a two-thirds vote in each chamber of the parliament, The parliament was controlled by an absolute Clerical majority, steadfastly opposed to Socialism and determined not to yield to the demands of Socialists or Liberals. It was patent that equal suffrage must be forced on the parliament, for the parliament would never grant it freely. The necessity of coercing the Clerical majority had been recognized by the *cartel* (coalition) of the Left, after the elections of June 2, 1912, had returned an increased government majority. Before the close of 1912 the opposition had issued the threat, "constitutional revision or the general strike."

When the Socialists proposed to use the general strike as a political weapon, the government, instead of being intimidated, became more than ever insistent on its own authority and on the fact that it controlled a constitutional majority; instead of yielding, it denounced its opponents. The chief of the Liberal group, M. Hymans, attempted to solve the difficult situation by advocating the nomination of an extra-parliamentary commission to look into the matter of constitutional revision, and to see if no better franchise for municipal, provincial, and legislative elections could be found. The idea pleased the Socialists, but gained no sympathy from the staunch conservatives, whose unwillingness to compromise was expressed by M. Woeste; and even before the vote was taken, on February 9, it was clear to all that the motion to consider the revision of the constitution would be lost. Before the vote was taken, M. Vandervelde, the Socialist leader, warned the chamber, "For the seventh time in twenty years you are going to put off the revision of the constitution. To those who asked you to be conciliatory, you reply with 'the reason of state.' The situation is clear. We ask the working class to hear us, to heed the command of its responsible delegates, not to compromise the success of the movement by violence or by a partial strike. Our proposition is going to be rejected now, but it will soon be taken up again." The motion was then voted down by 99 to 83 (two not voting), a clean vote of majority versus opposition, while the Socialist Left cried, *Vive le suffrage universel! Vive la grève générale!*—"Hurrah for universal suffrage!" "Hurrah for the general strike!" Three days later the *Peuple* announced that a general strike would begin on April 14, and a manifesto was issued, appealing to agricultural and industrial workers, merchants, and bourgeois to lend their support to the movement for universal equal suffrage. Despite these loud and ominous threats of impending trouble, the parliament meanwhile proceeded with the consideration of the army bill.

A last attempt at conciliation was made by the mayors of the nine largest towns. On February 23 they asked the Socialists to renounce the general strike, and promised to plead the cause of revision with the premier, M. de Broqueville. On March 7 thirty delegates of the committee for universal suffrage met the mayors at the *hôtel de ville* of Brussels, and decided that "The national committee, taking into consideration the overtures of the mayors of the large cities, and their declaration that they will make every effort to induce the government to consider the revisionist programme; desirous in a supreme effort of conciliation of permitting the mayors and the ministry freely to seek for a peaceable solution, resolve that: The decree ordaining the general strike to take place on April 14, is revoked." On the following day the cabinet met to discuss the proposals of the mayors. The government, however, was unwilling to concede to the demands made; even to allow a commission to investigate the matter would, if the commission favored revision, bind the government more or less to adopt the commission's recommendations. Nothing could be done, anyway, until after the question had been referred to the people in the next election. After some indecision and misunderstanding, the mayors gave up the attempt at conciliation, and the Socialists, at the Easter congress of the Workingmen's party, March 24, passed an almost unanimous vote in favor of the general strike. Of the 1350 delegates present at the Brussels *Maison du Peuple*, only thirty, including M. Vandervelde, voted in the negative.

The General Strike. The general strike began on April 14 and lasted eleven days. It had been prepared for months in advance, funds had been accumulated, workers had been notified, and the strike committee had laid plans to feed the strikers and to send the children abroad to sympathetic families in France and Holland. For those who had expected great excitement, the first day of the strike was disappointing. The newspapers appeared as usual, tramways were in operation, many shops were open, and neither riots nor mobs were in evidence. In the days that followed, one newspaper and then another suspended publication, some shops closed their doors, the paralyzation of industry became more apparent, and the strikers in Brussels paraded through the streets. But at no time was there the excitement of mob violence; the strike was a "strike of folded arms." Orderliness and organization were the most striking features of the workingmen's demonstration. The men had been told so frequently and so insistently that the strike was to be a strike of folded arms, a sober, serious, peaceable strike, that when the test came, discipline and order prevailed. The strike committee issued manifestos of encouragement and exhortation; savings-certificates were given out; and common meals were provided for the hungry. As to the extent of the strike, press reports varied. Clericals asserted that less than 300,000 of the million and a half manual laborers were on strike; the strike was not general, they said, since it had not materially affected the transport service, nor made headway among the Flemish Christian

Unionists of the north. The strength of the movement lay in the coal mines and in the factories of the south; in these the strike was practically complete. According to the Socialist journal, the *Peuple*, the number of strikers rose to 400,000 in the first few days. A statement given out by the national committee on April 16, placed the figure at 372,000. The number of strikers was largest in the province of Charleroi, 75,000; Mons, 52,000; Liége, 65,000; Centre, 45,000; Brussels, 21,000; Ghent, 19,000; Verviers, 18,000; Nivelles, 11,000; Huy-Warenne, 10,000; and Braine-Ecaussières, 10,000.

Although the strikes included only a minority of the laboring class, it was general enough to secure consideration from the government. A proposal made by the Radical, M. Lorand, for a sort of referendum on the subject of constitutional revision was discarded in favor of a somewhat ambiguous resolution consenting to the consideration by a commission of the desirability of amending the constitution. It was not a complete victory for the Socialists; indeed it was a compromise rather than a triumph. Nevertheless it satisfied the parliamentary leaders of the workingmen. The leaders, it will be recalled, had been very reluctant to execute their threats of general strike; they had voted in the negative at the Easter congress, and had constantly inclined toward conciliation. So witn this partial success they were ready to call off the strike. On April 24 the congress of the Workingmen's party met in the *Maison du Peuple* with 1300 delegates present and M. Furnémont in the chair. The congress adopted by a three-fourths vote a report prepared by MM. Anseele, Deštrée, and Vandervelde, commenting on the extent and effectiveness of the general strike, and concluding, "The national committee of universal suffrage and of the general strike, considering with pleasure the results obtained, urges all citizens to support the foreshadowed reform of universal suffrage as the indispensable condition of national peace; and desires to ask the consent of the congress to the immediate resumption of work." The adoption of this report meant the end of the strike, and work was resumed on April 25 and 26.

The government, in conformity with its promise, appointed a commission to inquire into the desirability of electoral reform; but the inquiry was limited to electoral reform in the communal and provincial elections and did not include parliamentary elections. The commission, appointed in May, seemed unable to accomplish anything, and real electoral reform appeared to be as distant as ever.

THE MILITARY LAW. The consideration of the army bill, interrupted by the general strike, was resumed and continued through the month of May. Various amendments tending to reduce the term of military service to twelve or even to six months, and a provision for regional recruitment (which would allow the creation of separate Flemish and Walloon regiments) were defeated in the Chamber. On May 29 the bill was voted by the lower Chamber by 104 to 63 (3 abstentions), and on June 20 received ratification in the Senate by a vote of 68 to 27. The new law, put into effect December 15, 1913, provided for general compulsory service, instead of service by one son per family as ordered by the law of December 14, 1909. The period of service with the colors in the infantry was fixed at fifteen months. The annual contingent of recruits was increased from 18,000 to 32,000, the war effectives from 180,000 to 350,000, and the peace footing from 42,800 to 55,000.

By many, this attempt of Belgium to keep pace with the military expansion of larger states was regarded as a piece of costly and senseless jingoism. When asked why Belgium should attempt to compete in military preparation with the larger states of Europe, the president of the council replied, "We do not doubt the sincerity and loyalty of the great nations who are the guarantors of our neutrality. But we have seen by numerous declarations that in case of war Belgium would be called upon again to offer Europe a battlefield. We cannot permit our national dignity to be lowered, nor can we allow our national self-respect to be impaired."

National dignity in this case necessitated the expenditure of 284,000,000 francs. To cover the cost of military reorganization, the finance minister, M. Levie, proposed a loan redeemable in 25 years and a yearly increase of the military budget by 47,000,000 francs. New financial resources had therefore to be created. This was done by a law modifying the registration, mortgage, stamp, and succession taxes. (1) The registration tax. For donations *inter vivos* the tax varies from 1 fr. 40 to 10 fr. 50 on the hundred. Societies doing business in Belgium are liable to a tax of 1000 fr. on a capital of less than 5,000,000 fr., 2000 fr. on 5,000,000 to 10,000,000, 4000 fr. on 11,000,000 to 20,000,000, 10,000,000 fr. on 20,000,000 to 50,000,000, and 20,000 fr. on capital greater than 50,000,000 francs. A graduated tax is established on leases. (2) Operations on the bourse are henceforth subject to a tax of 15 centimes on 1000 francs, *i.e.*, .015 per cent. (3) Stamp tax. A stamp tax was imposed on insurance policies, and on foreign securities, as well as on many legal documents. (4) Inheritance tax. The succession duty was fixed at 6 per cent. for husband or wife; 7½ per cent. for brothers and sisters; 9 per cent. for uncles, aunts, and adopted children; and 15 per cent. for unrelated persons. It may be noted that the chambers of commerce of Brussels, Ghent, and Liége protested vigorously against the new laws.

SPECIAL SESSION OF PARLIAMENT. Owing to the protracted discussions of the constitutional revision, military, and financial bills, it was necessary to call a special session of parliament in October, in order that the ministry might take up the budget and the remainder of its programme of social legislation, compulsory school attandance, and technical education. On December 23 the Chamber passed a miners' pension bill, granting a pension of $70 a year to all miners over 55 years of age who have worked underground for forty years; the expense to be met by state and provincial governments. The subject of education, always a delicate question in Belgium, was again brought to the fore by the government's proposals to compel children between the ages of six and fourteen to attend school, to require that all instructors must be Belgian citizens and possess diplomas, and to equalize the subsidies paid to communal and to "free" (Catholic) schools.

THE GHENT EXPOSITION. The international exposition of Ghent was opened on April 26 by the king and queen, and was largely attended.

See also CONGO, BELGIAN.

BENGAZI. See Tripoli.

BENEFACTIONS. See Gifts and Bequests.

BENNETT CUP. See Aeronautics.

BENZOL (Benzene). This substance was found by several reliable observers to be a valuable drug in the treatment of leukemia, a disease which has hitherto been resistant to all forms of therapy, although the X-rays have had a favorable effect in many cases. Leukemia is a disease of the blood-forming tissues (spleen, bone-marrow, and lymphatic glands), resulting in an enormous increase of white blood cells and a reduction in the number of red corpuscles, and is usually fatal. Von Koranyi first used benzol in 1912, with excellent results, in chronic cases of leukemia. He states that there were no failures and he also found that the administration of benzol was not incomparable with X-ray therapy, but had rather better effects in patients who had previously been exposed to the X-ray. These results have been confirmed by many other clinicians. Owing probably to the fact that there are several types of leukemia, involving, in different degrees of severity, the spleen, bone-marrow, and lymphatic system, the action of benzol is not uniformly beneficial in reducing the number of leukocytes, but hemoglobin and red corpuscles are usually increased. Benzol being a dangerous poison in large doses, it must be given with caution and in small amounts, 3 to 5 gm. per day being the average dose.

BEREA COLLEGE. An institution for higher education, founded at Berea, Ky., in 1845. In addition to the college department, there was a normal school, an academy, and several vocational schools. The students in all departments in 1913 numbered 1736. There were seventy-three members of the faculty. The productive funds amount to about $1,000,000, and the annual income to about $165,000. The library contains 27,000 volumes. The president is William G. Frost, Ph.D., D.D.

BERGSON, Henri. See Philosophy.

BERIBERI. Caspari and Moszkowski added an interesting chapter to the study of this disease. It seems conclusively proven that beriberi in man is the result of a diet closely restricted to polished rice or other food which lacks the antineuritic substance. Caspari and Moszkowski, who had been studying the subject for years, believed their investigations showed that beriberi is not the result of a deficiency in the diet, but of some toxic addition, and that it is essentially an intoxication. Their metabolic findings show great destructions of albumin, which could not be otherwise explained. One series of experiments which led to this conclusion was as follows: Pigeons were fed for several months on hens' eggs with the addition of a small amount of sugar and salt. On this diet the birds remained in excellent health. To the diet of some of the pigeons was added some polished rice. Each bird so fed developed polyneuritis in a longer or shorter time, while those remaining on egg diet remained healthy. This seems to demonstrate that it is a toxic addition and not a deprivation which is responsible for the affection. But the toxic substance is not necessarily in the food, but may originate in the body under the influence of a polished rice diet. See also Plague.

BERLIN. See Architecture.

BERMUDA. A British colony, composed of about 300 small islands lying some 500 miles east of Cape Hatteras, having an area of 19 square miles and a population in 1911 of 6691 white and 12,303 colored. Capital, Hamilton (2627 inhabitants). Originally a maritime people, the population in recent years has engaged almost entirely in the cultivation of early vegetables for export to the New York market. Nearly all provisions consumed in the islands are imported. Many tourists visit the islands during the winter season, which is mild and salubrious. School attendance is compulsory for children of primary school age, but all schools are private and charge fees. Imports and exports for the year 1911 were valued at £545,540 and £134,033 respectively (£517,074 and £106,508 in 1910). Revenue and expenditure (1911), £79,248 and £90,100 (£78,593 and £68,392 in 1910). Customs revenue, £63,707. Public debt, £45,500. Governor (1913), Lieut-Gen. Sir George M. Bullock.

BERRY, James Henderson. Former United States senator from Arkansas, died January 30, 1913. Born in Jackson County, Alabama, in 1841, he removed in 1848, with his parents, to Arkansas. In 1861 he joined the 16th Arkansas Infantry (C. S. A.) as second-lieutenant. He lost a leg at the battle of Corinth in 1862. At the close of the war he studied law; in 1866 was admitted to the bar; and was twice elected to the State house of representatives—in 1866, and in 1874. In the latter year he was speaker. He was president of the Democratic State convention in 1876; two years later he became judge of the Circuit Court of the State; was elected governor of Arkansas in 1882; and in 1885 United States senator to fill the unexpired term of A. H. Garland. He was reëlected in 1889, 1895, and 1901, but was defeated in 1907.

BETAFITE. See Mineralogy.

BEZJIAN, H. Alexan. A Turkish scholar and educator, died February 10, 1913. He was born in Turkey in 1838. His early training was received at Bebek Seminary, under Dr. Cyrus Hamblin. He studied at Yale University, where he took the degree of Ph. D. in 1874. With the exception of time spent in the United States and a year spent in France and England, he taught almost continuously at Aintab, Turkey, and the neighboring city of Marash for fifty-six years. For thirty-seven years he was the senior member of the faculty of Central Turkey College. He wrote much for the newspapers, and, besides books on natural religion, a *Guide to the Study of the English Language*, and *Elements of Physics*. He was one of the most distinguished scientific men that Turkey has yet produced.

BIBLE SOCIETY, American. An organization for the encouragement of a wider circulation of the Holy Scriptures, founded in 1816. During the year ending June 30, 1913, the work of the society continued to expand. The aggregate issues for the year were 4,049,610 volumes. This aggregate included 399,734 Bibles, 713,891 New Testaments, and 2,935,985 portions of the Bible or New Testament. This was an increase of 358,409 volumes over the issues of 1912, and more than twice those reported in 1907. Of this aggregate, 2,107,159 volumes were issued from the Bible House in New York and 1,941,751 volumes from the society's agents abroad. The total issues of the society in its ninety-seven years of existence amounts to 98,268,715 volumes.

An important department of the society's work is the translation of the Scriptures into foreign languages. During 1912, arrangements were made for the continuance of the translation of the Scriptures into the language of the Navaho Indians by missionaries of the board of home missions of the Presbyterian Church. The revision of the Zulu Bible, which had been carried through by missionaries of the American board in South Africa, is nearing its completion. The process of transliterating the Kurdish New Testament is making steady progress. Other additions of the Bible which are being revised are the Siamese, Chinese and the Spanish version of the New Testament. The home agencies of the society include work among the colored people in the South, the Northwestern agency, the South Atlantic agency, the Western agency, Pacific agency, Southwestern agency, the Eastern agency, and the Atlantic agency. Foreign agencies are found in nearly all the countries of the world. In addition to its work by means of agencies, the society is in correspondence with a number of missions through which it distributes Scriptures in some parts of Europe, Asia, and Africa. The total appropriation made during the year for home agencies was $138,600, for foreign agencies $317,800, for special purposes $40,000, for the manufacture and purchase of Scriptures $250,000, for miscellaneous expenditures, $67,000, or a total of $813,400. The endowment funds of the society amount to $2,385,290 and the annuity funds to $281,961, or a total of invested funds of $2,594,252. The president of the society is James Wood, the recording secretary, Henry O. Dwight, LL. D., and the treasurer, William Foulke.

BIBLE SOCIETY, British and Foreign. Founded in 1804, the sole and simple aim of this richly endowed society is to promote the widest possible circulation of the Holy Scriptures—always in the King James version, or in the revised English version of 1881-1885—a circulation which in the course of a single year has achieved a grand total of close upon 6,000,000 copies. Up to 1913, the society had issued close upon 200,000,000 copies. Excluding the United Kingdom, it had agencies or secretaries in 27 of the chief cities of the world. In England and Wales alone there were 5800 auxiliaries, branches, and associations.

BICYCLING. See Cycling.

BILLIARDS. Amateurs occupied the limelight in billiard circles in 1913, their playing being of such a high character that the National Association of American Billiard Players plans to raise the qualifying average for the Class A championships from seven to eight. The grand average for international tournaments will be placed at ten. The international championships in 1913 were held at Paris and were won by Albert Morier of France. J. F. Poggenburg was the United States representative. In the national Class A championship tournament held at Philadelphia, Joseph Mayer was the victor, winning six matches and losing none. Mayer made a high run of 130. His high average was 22 4-18. Charles F. Conklin finished second in the tournament with five victories and one defeat. The Class B amateur title went to H. A. Coleman, and the Class C title was won for the second successive year by C. B. Terry.

In professional billiards, W. F. Hoppe successfully defended his 18.2 balk line championship three times, the matches all being played in the Hotel Astor, New York. In the first contest, Hoppe defeated George Sutton by 500 to 301. In the second, Hoppe defeated Koji Yamada by 500 to 33, and, in the third, Hoppe defeated Calvin Demarest by 500 to 211.

Alfredo De Oro lost the pocket billiards title to Benjamin Allen, the score being 515 to 600. Allen also defeated Charles Weston, challenger for the title, by 600 to 411. De Oro successfully defended his three-cushion carom championship by defeating J. B. Hogan, 150 to 120, and J. W. Carney, 150 to 143. The three-cushion game continued to increase in popularity, and a tournament has been arranged for the early part of 1914.

BIOGRAPHY. See French Literature, German Literature, Italian Literature, and Literature, English and American.

BIOLOGY. See Botany, Zoölogy, and Carnegie Institute of Washington, *Department of Marine Biology*.

BIPLANES. See Aeronautics.

BIRDS AND BIRD PRESERVATION. See Ornithology.

BIRTH RATE. See Vital Statistics.

BIRTH STONES. See Gems and Precious Stones.

BISBEE, Marvin Davis. An American educator and librarian, died August 30, 1913. Born in Chester, Vt., in 1845, and graduated from Dartmouth College in 1871, he studied at the Andover Theological Seminary, and in 1873 was ordained to the Congregational ministry, later filling pastorates at Fishville, N. H., and Cambridge, Mass., until 1881. In that year he became associate editor of the *Congregationalist*, serving until 1886, when he was appointed professor of divinity and librarian at Dartmouth College. In 1883 he became professor of bibliography and librarian at that college. He served in this position until 1910, when he retired on the Carnegie Fund. From 1910 until the time of his death, he was director of extension courses at the Chicago Theological Seminary. He was a member of several learned societies.

BLAKE, Lillie Devereux. An American lecturer and advocate of woman suffrage, died December 30, 1913. She was born in Raleigh, S. C., in 1833. Her father died while she was two years of age, and her mother removed with her to New Haven. Her first attempt to obtain equal rights for women was a demand for admittance to Yale University. This was denied her. In 1855 she married G. Q. Umstead (died in 1859), and in 1866 to Gaenfill Blake, a New York merchant. In 1870 she openly advocated the cause of women suffrage on lines laid down by Elizabeth Cady Stanton. Her first fame as a lecturer was won by her replies to a series of lectures on women by the Rev. Dr. Morgan Dix, rector of Trinity Church. These lectures, later published in book form as *Woman's Place To-day*, became a handbook on woman suffrage. For eleven years she was president of the New York State Woman Suffrage Association. In 1900 she founded and became president of the National Legislative League. She worked for legislation in favor of women in many States, and was instrumental in bringing about many reforms in the treatment of women in various forms of employment. She was the author of *Southwould* (1859); *Rockford* (1862); *Fettered for Life* (1872); *Woman's Place To-day* (1883); and *A Daring Experiment* (1898).

BLAST FURNACES. See Coke, Copper, Iron, Lead, and Metallurgy.

BLUE-SKY LAWS. See Financial Review.

BOHEMIA. See Austria-Hungary, *Area and Population*, and *History*.

BOILERS. Improvements in boilers and boiler room practice during the year 1913 were characterized by attempts at increased efficiency and economy rather than radical innovations. In most large plants increased attention was being paid to various measuring, indicating, and analyzing devices for the more intelligent control of the operation of the boilers and, at the same time, greater training supervision of the firemen, was being practiced, the aim being, of course, to secure the most economical combustion of the fuel and the greatest amount of heat received by the water with a minimum loss by stack gases and other waste. Without specifying any particular devices the general tendency was toward securing more automatic control of boiler plants so that the human element would be eliminated, yet, at the same time, more attention than ever was being paid to this important consideration. Just as mechanical stokers had been successfully developed for solid fuel, so mechanical atomizers for oil fuel were arousing the attention of engineers, especially with the more extensive use of such fuel. While a mechanical atomizer that operates without the loss of equivalent energy is desired, it must be one working more advantageously than the present systems of steam and compressed air.

The record of the Detroit Edison Company for boilers of large output and square feet of surface was to be maintained in the new Connors Creek station on Belle Isle. At the Delray station the units in use were rated at 2350 boiler horse power on a basis of 10 square feet of heating surface, and with this installation it was found possible for a single unit to carry a load of 11,000 kilowatts. In the new installation as planned the same general type of unit, with equal heating surface, was to be used, but certain modifications of the furnace were arranged so that by forcing one boiler could carry continuously the enormous load of 13,300 kilowatts.

In the United States, the usual number of boiler accidents and explosions were noted during the year, and a tabulation for the first six months totalled 234, in which 68 persons were killed and 234 were injured. In addition, during this period there were three economizer explosions in which 6 were killed, and 20 injured. The statistics on this subject are compiled annually by the Hartford Steam Boiler Inspection and Insurance Company, which includes under the term of boiler explosions, steam pipe ruptures, air and elevator tank explosions, breaks in the cylinder head, etc. In 1912 there were 537 such accidents, in which 278 persons were killed and 392 injured. Such a list of fatalities naturally led to an agitation for more stringent State license boiler inspection laws, intelligently enforced. In 1913 progress in this direction was indicated by an engineers' license law for California, a boiler inspection law for Indiana, revised laws for Montana, a license law for New Jersey, and new boiler regulations for the province of Ontario. The National Association for Stationary Engineers had a national license committee at work in this field and the National Association of Tubular Boiler Manufacturers had adopted standard boiler statistics, which were considered further in the direction of safety.

BOKHARA. A Russian vassal state in central Asia, covering about 83,000 square miles; population, about 1,500,000. Capital, Bokhara.

BOLIVIA. An interior republic of South America. The seat of government, executive and legislative, is La Paz; the supreme court sits at Sucre.

Area, Population, etc. The estimated area is 1,379,014 square kilometers (532,437 square miles), or, including disputed territory, 1,458,034 square kilometers (562,047 square miles). The delimitation of the Argentine boundary was in progress during 1913. The 1900 census returned 1,744,568 inhabitants, of whom 50.9 per cent. were Indian, 26.7 mestizo, 12.7 white, 0.21 negro, and 9.4 unclassified. The estimated population in 1912 was 2,450,000. The larger towns include La Paz, with about 95,000 inhabitants; Cochabamba, 29,000; Potosí, 25,000; Oruro, 24,000; Sucre, 23,500; Santa Cruz, 21,500; and Tarija, 8000. In 1912 there were 990 elementary schools, with 3960 teachers and 81,336 pupils. For secondary instruction, 21 colleges, 5 clerical institutions, and 5 private lyceums are reported, with total of 180 teachers and 2177 pupils. Higher instruction is available at 19 institutions, with 78 professors and about 800 students. The state religion is Roman Catholicism, to which almost the entire population is at least nominally adherent.

Production and Commerce. The great elevated plateau of western and central Bolivia contains the larger part of the population, both urban and rural. Mining is the leading industry. The area under cultivation is estimated at over 4,900,000 acres, producing corn, rice, barley, beans, potatoes, etc., but these crops are of little commercial importance. In the north, rubber is produced in considerable quantities. In output of tin ore Bolivia ranks next after the Federated Malay States. The other important mining products are silver, bismuth, copper, and gold. Livestock as reported for 1910: Cattle, 734,535; horses, 96,867; mules, 44,635; asses, 174,090; sheep, 1,454,729; goats, 473,370; swine, 114,147; llamas, 428,209; alpacas, 112,033.

Imports and exports have been as follows, in thousands of bolivianos:

	1907	1908	1909	1910	1911	1912
Imports..	34,562	33,069	36,937	48,802	58,371	49,509
Exports..	45,902	58,924	63,764	74,567	82,631	90,123

The leading exports in 1912 were: Tin, 60,238,196 bolivianos (52,639,603 in 1911); rubber, 15,508,721 (18,921,192); silver, 4,308,329; copper, 2,150,042; sealed gold, 1,297,375; bismuth, 2,106,000; coca, 726,000; hides, 276. In 1911, the United Kingdom was credited with imports 12,470,000 bolivianos and exports 59,582,000; Germany, 10,311,000 and 10,993,000; Belgium, 4,064,000 and 3,760,000; France, 2,832,000 and 6,751,000; Chile, 9,837,000 and 411,000; the United States, 9,865,000 and 627,000.

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Communications. The length of railway open to traffic in 1913 was reported at 1284 kilometers; under construction, 633 kilometers. Bolivia has undertaken a considerable railway extension, and in addition to the lines under construction, 2899 kilometers have been planned. The line from the port of Arica to Alto de La Paz has been completed, and opened under the auspices of the governments of Chile and Bolivia. Telegraphs in 1912: Lines, 6133 kilometers; wire, 8951; offices, 194. Post offices, about 200.

During the year the Corocoro Railway, a branch of the Arica to La Paz line, extending to the mining centre of this name, was opened for traffic. Construction was under way on the line from Portugalete to Jupiza and from Oruro to Cochabamba.

Finance. The law of September 14, 1908, made gold the standard of value and fixed a rate of 12.5 bolivianos silver as equivalent to a pound sterling, that is, par value of the boliviano, 38.932 cents. The provisions of this law have not been fully carried out as the congress failed to provide the means to make it practical; Bolivian gold is not yet in circulation, and only the British sovereign and the Peruvian libra are legal tender to an unlimited amount.

The estimated revenue and expenditure for 1912 were 17,237,100 and 17,356,552 bolivianos respectively. The actual revenue was reported at 20,164,602 bolivianos. The 1913 budget showed estimated revenue 22,073,500 bolivianos, and estimated expenditure 25,258,450. The estimated receipts were: Import duties, 10,387,000 bolivianos; export duties, 4,971,500; imports, 2,444,500; other, 4,270,500. The larger avenues of expenditure: Ministry of commerce and finance, 8,496,435 bolivianos; war and colonization, 5,070,629; interior and fomento, 4,055,045. The public debt in 1913 stood as follows: Foreign, £473,600 (loan of 1908), £1,491,750 (loan of 1910), and £1,000,000 (loan of 1913); internal, 5,467,610 bolivianos; floating, 5,542,283 bolivianos.

Government. The president, who, with two vice-presidents, is elected for four years, is assisted by a cabinet of six ministers. The legislative power is vested in a bicameral congress elected by direct vote; the Senate has 16 members elected for six years, and the Chamber of Deputies 75 members elected for four years. The president for the term beginning August 14, 1909, was Eliodoro Villazón. His successor was Ismael Montes, who was inaugurated August 14, 1913. First vice-president, J. M. Saracho, who had been second vice-president in the Villazón administration; second vice-president, José Carrasco.

Army. An army of about 300 officers and 4000 men on a peace basis is maintained which, in time of war, can be augmented to about 85,000 men. National service is obligatory from the 21st to the 40th years, consisting of five years with the active army, two of which are spent with the colors, five years in the first ban of the national guard, and ten years in the second ban of the national guard. The troops, which have been trained from time to time by French and German officers, comprise seven battalions of four companies each of infantry, one battalion of three companies of machine gun troops, two regiments of four squadrons each of cavalry, one division of two batteries each of four pieces of field artillery, one regiment of mountain artillery of two divisions of two four-gun batteries each, a system of mobilization whereby the country is divided into sections where groups of from 40 to 100 men are more or less developed.

History

The New President. In the presidential elections of May 1 the only candidate for the presidency was Señor Ismael Montes, former minister to Paris. Señores Saracho and Carrasco were elected vice-presidents. The retiring president, Señor Eliodoro Villazón, made his farewell speech to Congress on August 5, dwelling with especial emphasis on the necessity for railway communications with Buenos Aires, for the achievement of which he had negotiated a loan of $5,000,000 with the *Crédit Mobile* of Paris, and had arranged with the Argentine Republic for the construction of a railway from Quiaca to Tupiza. The president-elect, General Montes, assumed office a few days later and appointed the following ministers: Sr. Cupertino Arteaga, foreign relations; Sr. Claudio Pinilla, interior; Sr. Casto Rojas, finance; Sr. Placido Sanchez, justice; Sr. Carlos Calvo, education; Sr. Nestor Gutierrez, war.

The Congress. On October 23, the Chamber of Deputies passed a new banking law. There was also under consideration a new law prohibiting the importation of alcohol after January 1, 1917. Numerous applications were received for permission to exploit the salt mines of the west. After almost a month of heated debate the Chamber of Deputies passed a bill in December giving to the national bank the exclusive right to issue paper money.

Mistreatment of Aborigines. It was reported in October that conditions in the northern part of Bolivia among the natives employed by *concessionaries* to collect wild rubber were as scandalous as those unearthed in the course of the recent Putumayo investigation. The governments of Great Britain and the United States were said to be investigating the matter. In December it was stated that the Aborigines Protection Society would not at present publish its charges relative to the cruel treatment of Bolivian natives, the delay being ascribed to diplomatic pressure. For further details, see Peru.

Foreign Affairs. The government was actively engaged in an attempt to reach an understanding with the neighboring state of Chile. Bolivia, as is well known, is extremely anxious to obtain an outlet on the Pacific, either from Chile or from Peru; and in pursuance of this ambition General Montes proposed, in the spring of 1913, that Chile should cede the Pacific port of Arica to Bolivia, for compensation. This was not arranged, however, but by means of the La Paz to Arica railway, Bolivian industry was given access to the Pacific Ocean, and the Chilean government, by way of concession, declared Arica a free port. Another valuable concession was obtained by Bolivia: the suspension of all storage charges at the Chilean port of Antofagasta for goods in transit to Bolivia. On May 3 a protocol was signed by representatives of Chile and Bolivia in accordance with article 13 of the treaty of peace and amity of 1904, whereby the term of 15 years for the transfer of the Bolivian section of the La Paz to Arica railway by the government of Chile to Bolivia should be counted from May 3, 1913.

On October 28, Vice-President Carrasco paid a visit to Chile.

BOLL-WEEVIL. See Cotton.

BOOTS AND SHOES. The boot and shoe industry during the year 1913 was fairly prosperous, as customers seemed willing to pay the rising prices required by the advancing cost of leather of all kinds. Massachusetts continued to maintain its preëminence as the boot and shoe manufacturing State and statistics published during the year in a census of manufactures showed that the production of boots and shoes, exclusive of cut stock and findings, had increased from $196,898,074, in 1911, to $209,489,037, in 1913, a gain of $12,590,963, or 6.4 per cent. Lynn had replaced Brockton as the leading boot and shoe manufacturing centre in the United States, having gained in the year 12.2 per cent., while Brockton had lost. Haverhill, also, had gained 11 per cent. in its output. The average earnings in these cities where the shoe industry flourished were considerably higher than in other cities, being for Brockton $639, Lynn $632, and Haverhill $612. In regard to 1913, unofficial estimates for the boot and shoe production of Lynn placed its value at between $37,000,000 and $38,000,000, as compared with $35,500,000 in 1912 and $33,500,000 in 1911. Brockton also showed an important increase in 1913, as indicated by estimates from its leading newspapers. There were shipped during the year 678,966 cases, a gain for the year of 20,651 cases over 1912, and the total value of the products for the year was $51,841,819, or a gain of $4,000,000 over 1912. The number of pairs in the shipments were 18,190,042, an increase of 1,215,892 pairs over 1912. The prosperity of Brockton was further interesting, as the boot and shoe industry there was thoroughly organized, and labor union workers in 1913 numbered 12,520, as against 11,620 in 1912. In Haverhill the output for 1913 was 596,495 cases, an increase of 24,540 over 1912. This was the largest yearly production in the history of the city, standing for an average shipment of 11,471 cases, with a maximum shipment of 15,931 cases during the week of January 2, 1913.

Pure Shoe Legislation. The boot and shoe industry, like other lines of manufacture in the United States, was much concerned during 1913 with "pure fabric," or, more specifically, "pure shoe" legislation. At the end of 1913 it was stated that "pure shoe" laws had already been adopted by some 25 different States throughout the Union and that eight distinct measures of the same general nature were pending in Congress. The general tendency of these statutes, or bills, was that shoes not made entirely of leather should be stamped "adulterated," or, "substitute leather." There were many different points of view to be considered in connection with such legislation. For example, it was claimed that where fibre counters—the stiffening inserted above the heel of a shoe—were employed in 24 million pairs of shoes with a guarantee that the retail price of the shoes would be refunded if the counter did not outwear the shoes, only one pair in each 143,000 was returned on account of the poor wearng qualities, a better record than was secured with all leather counters. Furthermore, it was said that there were not sufficient hides in the country to supply material for all leather shoes and that this deficiency amounted to at least two million hides, not to mention the increasing cost of leather. The shoe dealers also claimed that the price of hides and leather was artificially stimulated by the interests and control of the packing houses, and meat industry, and they asserted that they were in part responsible for the "pure shoe" law agitated. It was further claimed that the retail price of shoes would rise to at least $10 per pair if such legislation was enforced, and while shoe dealers had no objection to the proper branding of shoes as "all leather," or "pure leather," and to laws against misrepresentation in advertising, yet they claimed that to brand the ordinary shoes of commerce that were furnishing satisfactory wear as "adulterated" or "substitute leather" was unfair to them and against public interest. See Leather.

BOSNIA AND HERZEGOVINA. See Austria-Hungary, *passim.*

BOSTON, Mass. See Docks and Harbors.

BOSTON AND MAINE RAILROAD. See Railways.

BOSTON OPERA COMPANY. See Music.

BOSTON PORT IMPROVEMENT. See Docks and Harbors.

BOSTON SYMPHONY ORCHESTRA. See Music.

BOSTON UNIVERSITY. An institution of higher education, founded under the auspices of the Methodist Episcopal Church in Boston, in 1869. The total number of students enrolled in the several departments of the university in the autumn of 1913 was as follows: Law school, 359; medical school, 117; theological school, 238; college of liberal arts, 758. The faculty numbered about 70. There were no noteworthy changes in the faculty during the year, and no noteworthy benefactions were received. The library contains about 10,000 volumes, but in addition, the university has the privilege of utilizing the facilities of the Boston Public Library.

BOTANY. Necrology. Among the botanists of note to die during the year were Lester F. Ward, long with the United States National Museum, Dr. A. Fischer, formerly professor of botany at Basel, and Robert Lindsey, curator of the botanic garden at Edinburgh, Scotland. Alfred Russell Wallace, who shares with Darwin the theory of natural selection, died November 7, 1913, aged 91 years. Dr. T. J. Burrill, noted as having discovered the cause of pear blight, the first demonstrated bacterial disease of plants, retired from active duty, and Dr. William Trelease, formerly director of the Missouri Botanical Gardens, succeeded him at the University of Illinois. Dr. L. Radlkofer, professor of botany at the University of Munich, has also retired.

The *Journal of Ecology* was established in England to foster the study of ecology, the first number appearing in March, 1913, and *La Revue de Phytopathologie* began publication in April.

Legislation. The principal legislation relating to botanical matters was an amendment to the plant quarantine act of August 20, 1912, by which the United States Department of Agriculture is permitted to secure material for investigation. Canada, Scotland, and England have adopted measures to aid shippers in securing the admission of plants and their products into the United States. In Pennsylvania the legislature made an appropriation of $100,000 to continue the active measures for the control of the chestnut blight, but the bill was vetoed on the acknowledged ground of its utter insufficiency. The Congress appropriated $80,000 for continuing a study, by the United States Department of Agriculture, of the disease and its control. Australia and South Africa have taken additional measures to prevent the introduction of plant diseases, and Tobago and Trinidad have adopted restrictive ordinances.

PLANT BREEDING. Great activity in plant breeding characterized the year 1913, many new forms being described and additional data given regarding the origin and character of others. Lancaster reported a bigeneric hybrid between *Zephyranthes* and *Cooperia*. Brown made a histological study of a number of hybrids and found that dominance in histological characters followed dominance in external characters. Von Tschermak gave additional data regarding the theory of factors as explaining phases of inheritance in stocks, peas, and beans. Stuart and Batchelor working independently with carnations found the commercial forms are heterozygous and when single and double forms are crossed segregations follow as would be expected under the Mendelian law.

Edith Saunders found sap color in stocks due to two factors, the absence of either resulting in white. Keeble stated that gigantism in *Primula* is due to three factors and fluctuating variations are due to the heterozygous state of one or more factors. Heribert-Nilsson claimed that *Œnothera lamarckiana* is a hybrid, and Davis seemed to confirm this belief. Gates found that some of the characters in the gigas group of *Œnothera* behave in a Mendelian ratio after they have arisen, but their appearance cannot be explained in this way.

Fruwirth brought together in a volume data regarding progress in plant breeding with a number of tropical and subtropical crops. Emerson and East reported on the inheritance of a number of characters in maize. Collins believed there is imperfect segregation in maize and selection is required to establish a full expression of their characters. East and Hayes gave an account of their experiments with maize and tobacco. Setchel and Goodspeed described a large number of *Nicotiana* hybrids, and Gabrielle Howard claimed that inheritance in tobacco can be explained by the Mendelian assumption of segregations. Passerini reported a mutant arising in a pure bred variety of wheat, and mutants of wild species of *Solanum* were produced by Heckel, Planchon, and Schikorra that are similar to certain cultivated varieties of *Solanum tuberosum*.

STUDIES OF SOIL ORGANISMS. Löhnis gave a comprehensive review of the progress in agricultural bacteriology to 1912. Brown claimed the vertical distribution of soil organisms is limited by aeration and toxic substances produced during plant growth. Sharp found living bacteria in soils that had been kept closely stoppered in the laboratory for 25 to 33 years. McBeth showed the addition of small quantities of nitrogen often hastened nitrogen fixation. Hoffmann confirmed McBeth and Kellerman that nitrogen fixation is increased by the addition of carbohydrates to soil, the carbohydrates supplying energy. Lipman claimed nitrogen fixing organisms behave physiologically like alkali-resisting plants. Migula claimed that soil bacteria in forests check their own activity by developing acid from decaying leaves. Hutchinson found that bacteria in Indian soils may reduce nitrates without anaerobic conditions. Bottomley showed that *Azotobacter* and *Pseudomonas* growing together fix more nitrogen than both grown separately, and Lyons claimed the same mutualism for cereal and leguminous crops.

PLANT PHYSIOLOGY. Stäger found that bright warm weather induced the formation of protandrous flowers in *Geranium robertianum*, protogynous ones in cool damp weather. Shantz found artificial shading had a greater effect on plant growth than temperature and moisture variation. Maximum growth occurred below the maximum of full illumination. Müntz claimed that assimilation was limited more by carbon dioxide supply than intensity of sunlight. A number of investigators found injurious effects due to radium emanations, ultraviolet light, X-rays, etc., when the exposures were too strong or of long duration. Radioactive waters stimulate germination and growth.

Experiments with electricity on plants showed that direct currents are less beneficial than alternating ones. Stone found electric discharges of high potential into the atmosphere stimulating to plant growth. Priestley and Vozáry reported increased crop production due to the same cause. Some interesting temperature relations were shown. Macfarlane found plant protoplasm shows a temperature adaptation from 200° to 100° C. Louguinine found the temperature of plants increases from the ground upward until an equilibrium is established. Buds have the highest temperatures of any parts of the plant. Freezing was found correlated with the density of cell sap and solutions of various salts were found to give protection against moderate degrees of cold.

Osterhout believes the plasma membrane of plant cells is proteid and that anæsthetics decrease its permeability. Ruhland claimed that the movement of colloids indicates a protoplasmic regulation of permeability. Leclerc du Sablon claimed anything that will cause contraction will reduce permeability, and Dachnowski showed that the injury due to bog water is in proportion to the amount of absorption. Dumont showed that permeable membranes may become semi-permeable through the absorption of salts and remain so until the concentration within the cell is lowered.

Briggs and Shantz elaborated a method of determining the water requirements of plants and found the amount of water required by various crops. Kearney found the presence of alkali increases the water requirements of plants. Cole demonstrated a method for the direct measurement of water movement in leaves. Seeliger found the maximum of transpiration takes place in half-grown leaves. Lloyd claimed a relationship between stomatal opening and water loss by cotton plants and that the stomata are closed at night, open in the morning, and again close about 11 o'clock. Livingston found leaves have a greater water withholding power at certain times of the day than at others. Ewart was unable to determine from experiments with trees whether water lifting power was due solely to the leaves or whether it was supplemented by other agencies. Renner claimed roots exert a passive relation to water absorption and that water movement is due to transpiration, negative pressure, and lowering of turgor in root cells. Leclerc du Sablon found increased transpiration in sunlight is due to increased permeability of cells and not chlorophyll activity.

Herlitzka claimed cholorophyll in living leaves exists in a colloidal state. Plester found in some species of plants that assimilation was greater than their green color would suggest. Light colored leaves were lower in respiration and assimilation, and red below green in both. Palladin claimed respiratory chromogens have an important function in respiration through their ability to absorb oxygen. Bokorny found that most toxic substances are stimulating to plants in low concentrations. Stoklasa synthesized carbohydrates through the influence of ultraviolet rays, and Moore and Webster synthesized aldehyde from colloidal uranium and iron hydroxids in sunlight. Angelico and Catalano found undoubted evidence of formaldehyde in the sap of leaves. Molliard claimed cholrophyll plays a rôle in synthesizing proteids. Palladin and others found ammonia a transformation product in plants. Prianishnikov found amids were synthesized from ammonia by a number of species of plants.

A number of investigators reported hydrocyanic acid in plants and Peche suggested it has its origin in connection with the chlorophyll of the pallisade parenchyma. Growth was found to depend upon turgescence, and investigations showed the law of the minimum applies to the growth activities of most plants. Montemartini claimed phosphorus plays an important part in reproductive processes and nutrition, and nitrogen in vegetative development. Mameli claims manganese essential in chlorophyll formation. Gile found concentration of solutions more important in the lime-magnesia ratio of plants than their balancing. Osawa claimed seedlessness in citrus fruits is generally due to lack of fertile pollen grains and not to the absence of normal embryo sacs.

Plant Diseases. Investigations of a number of nonparasitic causes of plant injuries were reported upon. Gatin gave additional evidence of the injury to plants by the ring roads. Crowther and Steuart found the injurious effect of city smoke could be detected to a distance of seven miles. Bokorny thought the injury attributed to tobacco smoke was due to the ammonia formed, while Crocker and Knight considered it was caused by carbon monoxide and ethylene gas. Averna Saccà claimed chlorosis of grapes, coffee, and other plants in Brazil is due to a lack of magnesium and not too much lime. Allard obtained evidence which he believed indicated the mosaic disease of tobacco was due to a living organism, but Chapman claimed it was due to a disturbance in the oxidases.

The rust problem continued to be of interest, and Arthur, Kern, Deitel, Frazer, and others reported upon heterœcious forms, while Johnson described a number of unattached forms in the United States. Magnus described a number of geographic or biological races of *Puccinia graminis*. A disease of wheat and rye known as the foot disease, due to several species of fungi, among them *Ophiobolus graminis*, gave serious trouble in Europe. The timothy rust, only recently considered of economic importance in the United States, was reported as spreading rapidly. The theory of Bolley that diminished yields of grain are in a great measure due to soil fungi received corroborative evidence in investigations conducted in Europe. The presence of rust pustules on grain was said by Eriksson to be of little significance in spreading infection, but Beauverie in France found the presence of the rust on the seed highly important. Attacks of *Helminthospodium* on grain were known for some time, and at least three species were said to attack barley in Wisconsin.

The chestnut blight, which threatened the destruction of chestnut trees, is known to occur from Merrimack County, N. H., to Albemarle County, Va., and westward to Livingston County, N. Y., Warren County, Pa., and Randolph County, W. Va. The active control measures begun in Pennsylvania were abandoned owing to a lack of sufficient funds. The United States Department of Agriculture continued studies into the nature of the disease and means for its control. The fungus is now known as *Endothia parasitica*, and what is apparently the same fungus was recently reported from China, indicating the oriental origin of the disease. The white pine blister blight (*Peridermium pini*), continued to be of interest, and its Cronatrium form on the currant has been reported from Massachusetts, Connecticut, and New York.

Potato diseases were troublesome in Europe, America, and Australia. The leaf roll, leaf curl, and black wart diseases gave most concern in Europe, especially in Germany and England, while the late blight became quite destructive in Australia. The leaf roll disease, the silver scurf (*Spondylocladium atrovirens*)' and the powdery scab due to *Spongospora subterranea* were all reported as having been introduced from Europe into the United States. Two dry rots were described by Wilcox and Woollenweber as due to species of *Fusarium*, but they are believed to be the same.

A large number of contributions to knowledge of diseases of fruit trees were made during the year. The fire or bacterial blight of pears and apples due to *Bacillus amylovorus*, in addition to pome fruits, is known to attack plums, and it was reported as present in England and Italy. The American gooseberry mildew (*Sphærotheca mors-uvæ*) proved very destructive in Europe, causing greater loss than in this country. Recent investigations of Shear, Taubenhaus, and others showed that the ripe or bitter rots of many fruits attributed to many species of *Glomerella* could be reduced to a very few distinct forms. The brown rot fungus of peaches, plums, etc., attributed in this country to *Sclerotinia fructicena*, was proved identical with *S. cinerea* of Europe.

The Control of Plant Diseases. Most of the experiments reported were in testing the efficiency of Bordeaux mixture, lime-sulphur, and some new fungicides. A number of investigators reported some injury to apples following spraying with Bordeaux mixture or lime-sulphur solution. Spraying with milk of lime soon after Bordeaux mixture will reduce injury due to that cause. At the Illinois Experiment Station, Bordeaux mixture was found the best general fungicide for the control of apple diseases. Lime-sulphur with lead arsenate gave excellent results in the control of apple scab. Brooks reported similar results. For the control of peach diseases lime-sulphur gave uniformly good results.

Vermorel and Dantony claimed that the adhesiveness of Bordeaux mixture and other copper fungicides can be largely increased by the addition of gelatin to acid solutions and of casein to alkaline ones; where casein is not available skimmed milk may be substituted. Ewert reported that Bordeaux mixture exerts a protective as well as a fungicidal influence during periods of drought and strong sunshine. For some reason the use of Bordeaux mixture did not prove economically profitable in Australia for the control of potato diseases during dry seasons. For the control of smut diseases of cereals, soaking for 4 to 6 hours in cool water followed by 10 to 15 minutes in hot water 42 to 50° C. gave complete immunity to disease and there was no loss in vitality of the seed grain.

See also Carnegie Institution of Washington, *Department of Botanical Research.*

Bibliography. Among the large number of botanical books which appeared during the year were, notably: W. Bateson, *Problems of Genetics;* J. C. Bose, *Researches on Irritability of Plants;* N. L. Britton, and A. Brown, *Illustrated Flora of Northern United States, Canada, etc.* (revised and enlarged edition); W. F. Bruck, *Plant Diseases,* translated by J. R. Ainsworth-Davis; H. DeVries *Gruppenweise Artbildung;* A. Engler, and E. Gilg, *Syllabus der Pflanzenfamilien;* H. Fittig, H. Scheneck, L. Jost, and G. Karsten, *Lehrbuck der Botanik für Hochschulen;* K. Goebel, *Organographie der Pflanzen;* W. F. Ganong, *The Living Plant;* P. Haas, and T. G. Hill, *Chemistry of Plant Products;* E. W. D. Holway, *North American Uredineæ;* H. Klebahn, *Grundzüge der allgemeinen Phytopathologie;* A. Legault, *Maladies cryptogamiques des Plantes Agricoles;* F. W. Neger, *Biologie der Pflanzen;* J. K. Small, *Flora of Southeastern United States,* revised; F. L. Sargent, *Plants and Their Uses;* P. Sorauer, *Handbuch der Pflanzenkrankheiten,* third edition; F. L. Stevens, *The Fungi which caused Plant Diseases;* E. Strasburger, *Das Botanische Prakicum,* fifth edition.

A considerable number of nature study, secondary school, and agriculture books of botanical interest have been published, among them: G. F. Atkinson, *Botany for High Schools;* E. Bourcart, *Insecticides, Fungicides, and Weedkillers;* B. C. Buffum and D. C. Deaver, *Sixty Lessons in Agriculture;* J. Burt-Davy, *Maize, its History, Cultivation, and Uses;* J. G. Coulter, *Plant Life and Plant Uses;* A. E. Knight, and E. Step, *Popular Botany;* D. D. Mayne, and K. L. Hatch, *High School Agriculture;* Julia E. Rogers, *The Book of Useful Plants;* E. J. Russell, *Soil Conditions and Plant Growth;* C. M. Weed, *Seeing Nature First;* W. P. Wright, *The New Gardening.*

BOUCICAULT, Aubrey. An American actor, died July 10, 1913. He was born in London in 1869, the son of Dion Boucicault. He received his education at the City of London School and at Eton College. In 1887 he removed to the United States, where in the same year he began his professional career in *The Two Orphans* with Kate Claxton. He then returned to London, where he played parts in several theatres. On returning to the United States again, he for some time supported Richard Mansfield. He first attracted general attention in Oscar Wilde's play *A Woman of No Importance.* Among other plays in which he took a prominent part were *My Friend from India, The Ragged Regiment, Mistress Nell,* and *The Lily.* He also revived the most famous of the plays written by his father. Three years before his death he acted only occasionally on account of ill health.

BOWDOIN COLLEGE. An institution for higher education at Brunswick, Me., founded in 1794. In the autumn of 1912, there were 422 students enrolled in the college, and the faculty numbered 86. The college includes the Medical School of Maine. Professor Henry L. Chapman, LL.D., professor of English literature and for many years senior professor of the college, died in 1913. The productive funds at the end of the college year 1912-13, amounted to $2,210,503, and the income for the year 1912-13 to $153,151. There were in the library 105,389 volumes. The president is William De Witt Hyde, S.T.D.

BOWLING. Two new records were made in 1913. The Flor de Knispel bowlers of St. Paul scored a total of 3006 pins for three games in the American Bowling Congress tournament at Toledo, and W. J. Knox of Philadelphia at the same tournament rolled a perfect score of 300, a feat never before accomplished. The results of the 13th annual A. B. C. tournament follow: Individual championship won by Earnest Peterson of Columbus, Ohio, with a total of 1693; two-men team championship won by the Schultz-Koster combination of Newark, N. J., with a score of 1291; five-men team championship won by the Flor de Knispels of St. Paul with a total of 3006 pins; all-round championship won by George Herman of Cleveland with a score of 1972 and an average of 209.1. The seventh annual tournament of the National Bowling Association was held at Rochester. The winners and scores were: Individual, George Kumpf of Buffalo, 712; two-men team, Smith-Riddell of New York, 1259; five-men team, Bronx Centrals of New York, 2938; all-round, James Smith of Brooklyn, 1928, and an average of 214.2.

BOWMAN, Edward Morris. An American musican and composer, died August 27, 1913. Born in Barnard, Vt., in 1848, he graduated from St. Lawrence University in 1856. He studied music under D. William Mason in New York, the piano under Franz Bendil in Berlin, and the organ under Alexander Guilment in Paris and Sir Frederick Bridge in London. In 1866-7 he was organist at Trinity Church in New York, in the latter year leaving that position to become a teacher and conductor of music in St. Louis, where he remained for 20 years, after which he was appointed organist and director of music at the Peddie Memorial Church in Newark, N. J. From 1891-5 he was professor and director of music in Vassar College. He was the founder and director of the Temple choir and the Temple orchestra of 200 members. In May, 1906, he became director of the Calvary Baptist choir in New York City. He was a member of many musical associations and societies, and was the author of *Bowman's Weitzmann's Manual of Musical Theology* (1876), and *Master Lessons in Piano Playing* (1911). He also contributed to musical journals

BOWMAN, GUY. See SOCIALISM, *Great Britain.*

BOXING. In striking contrast to the year 1912, when eight titles changed hands, no new champions appeared in the boxing arena in 1913. The list of champions therefore remains the same and includes: Jack Johnson, heavyweight; Willie Ritchie, lightweight; Johnny Kilbane, featherweight; Johnny Coulon, bantamweight. The middleweight and welterweight titles are still open. Jack Johnson took part in only one bout in 1913, that with "Jim" Johnson in France. The heavyweight champion broke his arm early in the contest, and had to be content with a draw. The French Federation of Boxing made an unsuccessful appeal during the year to the State Athletic Commission of New York to have Johnson's title taken from him. The white heavyweight standing out most prominently at present is "Gunboat" Smith, who in 1913 defeated Sam Langford and other aspirants for the championship. Georges Carpentier won the heavyweight championship of Europe by defeating Bombardier Wells, the English title holder in one round.

Boxing in New York State was put on a much sounder basis, although fewer bouts were held during the year. The receipts of the State commission were $45,000, or about $10,000 less than in 1912, and 116 licenses were issued.

The championships of the A. A. U. were held at Boston, May 7. The results of the final bouts were: 108-pound class, Barney Snyder of Boston defeated Leo Kahn of New York; 115-pound class, T. L. Keagan of Boston defeated E. K. Orthe of New York; 125-pound class, W. Hitchen of Toronto defeated W. Ridge of Brockton; 135-pound class, M. J. Crowley of Malden defeated Mike Sullivan of Boston; 145-pound class, Charles Askins of Boston defeated T. J. Barrett of St. Johns, N. B.; 158-pound class W. Barrett of New York defeated B. A. Lavelle of Boston; heavyweight class, A. J. Reich of New York defeated W. F. May of the U. S. navy by default; 175-pound class, Joe Brown of Pawtucket defeated Nap Boutillier of Boston.

The winners of the Canadian championships were: 105-pound class, Williams of Toronto; 115-pound class, Pacy of Toronto; 125-pound class, Hitchens of Toronto; 135-pound class, Jackson of Toronto; 145-pound class, Harris of Toronto; 158-pound class, J. Smith of Toronto; heavyweight class, W. L. Smith of Buffalo. The English amateur champions are: G. R. Baker, featherweight; A. Wye, bantamweight; F. Grace, lightweight; W. Bradly, middleweight; R. Smith, heavyweight.

BOYCOTT. DANBURY HATTERS' CASE. This famous case grew out of a strike by union hatters employed by D. E. Loewe & Company of Danbury, Conn., July, 1902. The following year the company brought suit against Martin Lawler and 239 other members of the United Hatters of North America for maintaining a boycott in violation of the Sherman anti-trust law. The defense was taken up by the American Federation of Labor (q.v.), while the prosecution was supported by the Anti-Boycott Society of America. In 1908 the Supreme Court handed down a verdict of interpretation, in which it was maintained that the acts charged constituted a violation of the Sherman law. Late in 1909 in the United States District Court at Hartford, a jury rendered a verdict for the plaintiff of $74,000. Treble damages were awarded in accordance with the Sherman law. This verdict was set aside by the Court of Appeals; but in a new trial the jury late in 1912 rendered a verdict for the plaintiff of $80,000 and cost, this sum being trebled. The case was then taken to the United States Circuit Court of Appeals, which on December 18 affirmed the judgment of the lower court. The plaintiff was awarded total damages of $272,000. In its opinion the court said:—"That the anti-trust act is applicable to such combinations as are alleged in the complaint is no longer debatable. The law makes no distinction between the classes, employers or employes, corporations or individuals. Rich and poor alike are included under its term. The Supreme Court particularly points out that, although Congress was frequently importuned to exempt farmers' organizations and labor unions from its provisions, these efforts all failed and the act still remains. No one disputes the proposition that labor unions are lawful. All must admit that they are not only lawful but highly beneficial when legally and fairly conducted, but, like all other combinations irrespective of their objects and purposes, they must obey the law."

BOY SCOUTS OF AMERICA. An organization founded in 1908, for the general purpose of training boys between the ages of 12 and 18 in self-reliance, manhood, and good citizenship. The movement has shown great increase since its foundation. In February, 1913, commissions were granted to 935 assistant cout-masters, 3479 scout-masters, and 231 scout commissioners, making a total of 4645 commissions for the year, as compared with a total of 4360 for the previous year. Charters were granted to 188 local councils. It is estimated that in 1913, there were nearly 14,000 men more or less actively interested in the movement as members of the local councils, and committees in different parts of the country. The total membership of the society is estimated at about 300,000. The Boy Scouts were brought into public eye in 1913 as a result of their efficient service on the field of Gettysburg, where they assisted veterans assembled there and performed other services. They have also rendered valuable service in bringing about a safe and sound 4th of July. In several States plans have been formulated wherby the Boy Scouts are actively coöperating in the efforts of State authorities to protect forests from fire and disease. These States include New Hampshire, Pennsylvania, North Dakota, Massachusetts, Michigan, and others. Organizations of the Boy Scouts have been formed in Hawaii, Porto Rico, and in the Philippine Islands. The honorary president is Woodrow Wilson, honorary vice-presidents William H. Taft, and Theodore Roosevelt, president Colin H. Livingstone, chief scout Earnest Thompson Seton, national scout commissioner Daniel Carter Beard, treasurer George D. Pratt, chief scout executive James E. West.

An organization called the American Boy Scouts was started in 1910 by W. R. Hearst as a military movement. Mr. Hearst later gave up the work and the name was changed to the United States Boy Scouts. It is localed chiefly to New York City.

BRADY, ANTHONY NICHOLAS. An American capitalist, died July, 1913. He was of Irish descent, but born at Lille, France, 1843. Shortly after his birth, his parents came to the United States and settled in Troy, N. Y. At an early age he was obliged to provide for himself, and found work in Albany as cashier in a hotel, studying in his scant leisure. In 1864 he opened a tea store in Albany, and his experiment was so successful that he soon opened other stores until he had a chain of them in Albany, Troy, and other neighboring cities. In the meantime he was attracted to the business of paving and building contracting; went to work at it; made contracts with the city for paving the sewers; and was very successful. His work for the city drew his attention to the question of lighting, and he studied the water-gas process. To carry out his plans in this connection, large capital was necessary, and he interested Roswell P. Flower, afterwards governor of New York, and Edward Murphy, later United States senator for New York. With them and with E. C. Benedict he formed a syndicate which purchased the Albany gas plants and became one of the most successful corporations of its kind in the country. His next step was the acquisition of the gas companies in Troy, and of the control of all the gas companies in Chicago and certain other cities. A successful venture in the oil business in Ohio followed. Electricity as a motive power for street railways then absorbed him, and he and his friends took over the horse-car lines in Albany and Troy and turned them into trolley lines. He then came to New York City and got control of the Bronx trolley lines and the Brooklyn Rapid Transit Company; and he consolidated the New York city surface car lines and made similar consolidations in Washington, Philadelphia, and other cities. He was a director, trustee, or officer in over a hundred important corporations; an art collector, whose collections included many important pictures; and a collector of books.

BRADY, James H. United States senator (Republican) from Idaho. He was born in Pennsylvania, in 1862, and when a child removed with his parents to Kansas. He was educated in the public schools and in the Leavenworth Normal College, and for three years he taught school, afterwards editing a newspaper for two years. In 1895 he removed to Idaho, where he became largely interested in the development of irrigation and in farming. He was nominated by acclamation for governor of the State and elected in 1908. He is president of the Trans-Mississippi Commercial Congress. In 1913 he was elected to the Senate to fill the unexpired term of the late Senator Heyburn. His term of office expires March 3, 1915.

BRANDEIS, Louis Dembitz (1856—). An American lawyer and publicist, born at Louisville, Ky. He was educated in Louisville, at Dresden, Germany, and in law, at Harvard. Though successful in the practice of his profession, he became more widely known through his interest in economic, social, and political problems. He was one of the earliest advocates of the adoption of a radical policy of conservation by the government, supporting Gifford Pinchot (q.v.) in the latter's attack on R. A. Ballinger (q.v.), and acting as counsel for Luther R. Glavis in the Ballinger-Pinchot investigation. In 1910 he appeared for the shippers in the hearing held before the Interstate Commerce Commission relative to an increase in the freight rates asked for by the railroads. He was also counsel (for the people) during the proceedings involving the constitutionality of the Oregon and Illinois ten-hour laws for women, and in the New York garment-workers' strike of 1910 he was chairman of the arbitration board. The various inquiries and investigations into the New York, New Haven & Hartford Railroad in 1912-13 brought from him a vigorous denunciation of the road's administration. He is author of many articles on public franchises, wage-earners' life insurance, and other economic subjects, and of contributions to legal reviews.

BRANNER, John Casper. An American geologist and educator; in 1913 elected president of Leland Stanford Junior University. He was born in New Market, Tenn., in 1850, and graduated from Cornell University with the degree of B. S. in 1874. He took graduate studies at Indiana University in 1885, receiving the degree of Ph. D. From 1875-77 he was a geologist of the Imperial Geological Commission of Brazil, and in the year following, was engineer and interpreter for a mining company in that country. He was special botanist of the United States Department of Agriculture in South America in 1880-81, and in 1882-83 was agent for this department. From 1883-85 he was topographic geologist for the geological survey of Pennsylvania. In the latter year he was appointed professor of geology at Indiana University, serving until 1892. For the greater part of this period, he was also State geologist of Arkansas. He was appointed professor of geology at Leland Stanford Jr. University in 1892, and in 1898-99 was acting president. From the last-named year until his election as president he was vice-president of this university. In 1899 he was director of the Branner-Agassiz expedition to Brazil. Following the earthquake in California in 1896, he was a member of the California Earthquake Commission. He was special assistant to the geological survey in Brazil in 1907-08, and in 1911 was director of the scientific expedition of that country. He was an associate editor of the *Journal of Geology* and the author of many publications relating to Brazil, geology, and physical geography.

BRAZIL, United States of. A federal relic pub
of South America. The capital is Rio de Janeiro.

Area and Population. The area of Brazil, not known with accuracy, is estimated at 8,550,000 square kilometers (3,301,155 square miles). The estimated population in 1912 was 24,000,000; another estimate placed it at 25,000,000. These figures include Acre territory (acquired from Bolivia in 1902), whose estimated area is 191,000 square kilometers (73,745 square miles) and population about 70,000. The census of 1900 returned 17,318,556 inhabitants, and that of 1890, 14,333,915. The census to be taken in 1910 was omitted on account of lack of funds. In January, 1913, Rio de Janeiro had 975,782 inhabitants. In 1912 the population of São Paulo was estimated at 400,000; Bahia, 350,000; Belem de Pará, 100,000; Porto Alegre, 100,000; Curityba, 60,000. Much uncertainty exists as to municipal populations; the following figures may indicate approximately the relative size of important cities: Recife (Pernambuco), 150,000; Manáos, 80,000; Fortaleza (Ceará), 50,000; Nichtheroy, 50,000; Santos, 50,000.

Immigrants in 1912 numbered 180,182. In 1907 the number of immigrants was 67,787; 1908, 94,695; 1909, 85,410; 1911, 135,967. The immigrants of 1912, of whom 124,612 were agriculturists, included 76,530 Portuguese, 35,492 Spaniards, 31,785 Italians, 9193 Russians, 7302 Syrians, etc., 5733 Germans, 3045 Austro-Hungarians, 2909 Japanese, 1513 French, and 1077 British.

Education. The greater part of the population is illiterate, but in recent years primary instruction has made considerable progress. In his annual message of 1913 the president stated that the government was giving great attention to education and was establishing many schools equipped in modern style. In 1910 there were 12,221 primary schools, with 634,539 pupils (352,418 boys and 282,121 girls). Of the schools, 2608 were municipal, 6918 government, and 2695 private. Secondary schools in 1909 numbered 327, with 30,258 pupils. There is no university in Brazil, but various institutions offer some opportunity for technical and professional instruction.

Production. Vast areas of Brazil are unsettled and some even unexplored. In the settled districts agriculture is the principal source of wealth. Coffee is the leading crop, grown chiefly in the state of São Paulo, but also in the states of Rio de Janeiro and Esperito Santo and to some extent in Minas Geraes. Rubber, gathered in the Amazon valley, ranks next to coffee in export value. In 1913 there appeared to be some reason to suspect that rubber collection in various Brazilian districts is carried on under conditions analogous to those which obtained in the Putumayo region of Peru, where murder, mutilation, and other atrocities were, and perhaps continue to be, perpetrated on the natives. Brazil is one of the chief sources of the world's supply of cacao, which is produced almost wholly in Bahia; this state leads also in the production of tobacco. Other important crops are sugar, produced especially in Pernambuco, cotton, rice, corn, yerba maté, and bananas. Stock-raising is fostered by the government, and large numbers of cattle are raised in parts of Matto Grosso, Minas Geraes, São Paulo, and Rio de Janeiro. Many districts of the republic are rich in minerals, but mining is not widely developed. There is some production of gold, manganese, gems, and monazite sand.

The leading manufacture is cotton cloth. In 1910 there were 194 cotton mills; spindles numbered 761,816 and looms 27,958; the consumption of cotton was 34,607 metric tons. In June, 1912, the number of industrial establishments in the country was 3664, with a capital of 727,719,771 milreis (paper), an annual output of 811,798,008 milreis, and 168,764 employees. The values of certain Brazilian manufactures are reported as follows for 1911: Cottons, 139,567,000 milreis; woolens, 11,375,000; sugar, 74,045,000; dried meat, 38,800,000; boots and shoes, 32,066; beer, 24,602,000; sacking, 22,390,000; tobacco, 21,763,000; matches, 21,475,000; hats, 17,384,000; tanned leather, 15,861,000; lard, 13,545,000; wooden furniture, 12,010.000; earthenware, etc., 10,906,000.

Commerce. In the special trade imports and exports of merchandise are stated as follows, in thousands of pounds sterling:

	1903	1907	1909	1910	1911	1912
Imports..	24.208	40.528	37,139	47.872	52.822	63.425
Exports..	36,883	54,177	63,724	63,092	66,839	74.649

The leading imports include iron and steel manufactures, machinery, railway materials, cotton goods, flour, coal, wine, arms and ammunition, codfish, kerosene, jerked beef, and paper. The weight in metric tons, and the value in thousands of pounds sterling, are as follows for the principal exports:

	1000 £	1000 kgs.		1000 £	
	1910	1911	1912	1912	1912
Coffee	26,696	675,468	724,818	40,401	46,558
Rubber	24,646	36,547	42,286	15,057	16,095
Hides	1,736	21,832	36,255	1,799	2,012
Maté	1,959	61,834	62,880	1,983	2,103
Tobacco	1,607	18,489	24,705	965	1,434
Cacao	1,383	34,994	30,468	1,641	1,530
Cotton	893	14,647	16,774	979	1,037
Peltry (raw)..	692	2,798	3,189	648	758
Sugar	679	36,208	4,727	409	56

Coffee export, in metric tons, prior to 1911: 1903, 775,634; 1904, 601,472; 1905, 649,230; 1906, 837,949; 1907, 940,840; 1908, 759,507; 1909, 1,012,842; 1910, 583,524.

The special trade by countries is reported as follows, in thousands of pounds sterling:

	Imports		Exports	
	1911	1912	1911	1912
United Kingdom....	15,344	15,970	10,040	8,861
Germany	8,870	10,909	9,703	10,685
United States.......	7,045	9,899	23,810	29,201
France	4,672	5,710	5,289	7,808
Argentina	4,025	4,757	2,630	2,928
Portugal	2,841	3,002	305	158
Belgium	2,203	3,414	1,603	2,002
Italy	1,926	2,489	770	843
Uruguay	1,174	1,588	913	856
Austria-Hungary ..	776	904	3,445	3,757
Netherlands	339	474	5,439	4,729
Total, including other	52,822	63,425	66,839	74,649

In 1912 the percentage of imports from the United Kingdom was 25.2, and of exports thereto 11.9; Germany, 17.2 and 14.3; United States, 15.6 and 39.1; France, 9.0 and 9.8; Argentina, 7.5 and 3.9; Belgium, 5.4 and 2.7; Portugal, 4.7 and 0.2; Italy, 3.9 and 1.1; Uruguay, 2.5 and 1.1; Austria-Hungary, 1.4 and 5.0; Netherlands, 0.7 and 6.3.

In 1910 there entered at the ports 5509 foreign vessels, of 13,591,515 tons (of which 4638, of 12,243,862 tons, steam), and 16,834 Brazilian vessels, of 7,813,659 tons (of which 10,544, of 6,647,349 tons, steam); total, 22,343 vessels, of 21,405,174 tons (of which 15,182, of 18,891,211 tons, steam). The merchant marine in 1911 consisted of 238 steamers, of 130,582 tons net, and 290 sail, of 60,728 tons net.

Communications. On December 31, 1911, the total length of railway in operation was 22,287 kilometers. During 1912, 787 kilometers were opened to traffic, making the total at the end of the year 23,074 kilometers (14,337 miles). It is of interest to note that the extension of Brazilian railways increased from 9073 kilometers in 1890 to 12,967 in 1895, 15,316 in 1900, 16,780 in 1905, 21,446 in 1910, 22,287 in 1911, and 23,047 in 1912. The following table, relating to the end of 1911, shows in kilometers (1) lines belonging to and managed by the federal government, (2) lines belonging to the federal government and farmed, (3) lines conceded by the federal government with guarantee of interest, (4) lines conceded by the federal government without guarantee of interest, and (5) lines belonging to the states of Para, Pernambuco, Bahia, Rio de Janeiro, São Paulo, Paraná, Santa Catharina, Rio Grande de Sul, and Minos Geraes; *a* indicates lines in operation, *b* lines under construction, and *o* lines for which studies had been approved.

	(1)	(2)	(3)	(4)	(5)
a	3,343	7,462	3,146	1,788	6,891
b	438	2,482	255	198	684
c	435	2,281	837	1,259	259

In 1912 the Madeira-Mamoré railway was completed the total length being 364 kiloemters. This line is of great commercial importance to Matto Grosso, Acre territory, and Bolivia.

Finance. The value of the gold milreis is 54.6 cents, of the paper milreis about 32 cents, fluctuating between 31.5 cents and 33.5 cents. The budget submitted to the congress for 1913 showed estimated revenue of 125,792,000 milreis gold and 345,243,000 milreis paper; estimated expenditures, 80,861,000 gold and 431,374,000 paper. For 1912 the revenue was reported at 137,096,000 milreis gold and 381,694,000 milreis paper; for 1911, 122,903,000 gold and 354,419,000 paper. Public debt, December 31, 1912: Foreign, £81,477,520 and 299,032,000 francs; internal, 685,289,600 milreis paper. The floating debt at the end of 1911 amounted to 256,546,647 milreis paper. Paper money in circulation at the end of 1912, 607,025,525 milreis. At this same date convertible notes in circulation amounted to 396,415,230 milreis paper. In 1912 the interest on the foreign debt was £4,178,292; on the internal debt, 33,640,609 milreis paper.

Navy. In 1913 the navy included: Two modern battleships (*São Paulo* and *Minas Geraes*), aggregating 38,500 tons; two armored coast guards, 6320; two scout cruisers (*Rio Grande* and *Bahia*), 6200; one protected cruiser (*Barroso*), 3450; one old battleship (*Riachuelo*), 5700; two second-class cruisers, 5840; three torpedo cruisers, 3090; ten modern destroyers, 6500. In addition there were two school ships, river gunboats, dispatch boats, old torpedo craft, etc. Of the foregoing vessels, the two modern battleships, the two scout cruisers, and the ten destroyers were built in pursuance of the naval programme of 1907. The programme was to be completed with a third battleship, the *Rio de Janeiro*, which was launched at Elswick, January 22, 1913. She has a displacement oi 27.500 tons and carries fourteen 12-inch guns. There was considerable delay in her construction, owing to changes in design; and she appears to have been finally unsatisfactory, as in the autumn of 1913 the government announced that the battleship did not harmonize with the fleet and would be sold. The principal characteristics of the *São Paulo* and *Minas Geraes* are: Designed speed, 21 knots; displacement, 19.250 tons; length between perpendiculars, 500 feet; beam, 95.5 feet; draft, 25 feet; battery, twelve 12-inch and twenty-two 4.7-inch guns; maximum thickness of armor belt, 9 inches.

Army. The Brazilian army, as organized, is based on compulsory service between the ages of 21 and 44, and consists of an active army with its reserve, in which the recruit spends nine years. The permanent army is composed mainly of volunteers and any deficiency is made good by lot. A reserve is maintained which each year undergoes a period of training of four weeks. There is also a reserve of the second line to which men are called for training for various periods, and a national guard and its reserve. On a peace basis the actual strength of the permanent army is about 18,000 men, while on a war basis the strength is estimated at about 500,000, although the full effect of the legislation governing the army was uncertain. The law fixing the total strength for 1913 put the figure for the rank and file at 31,825, distributed among the units on a minimum establishment basis. This law also gave authority to call out reservists for manœuvres up to the number of 20,000. The active forces include fifteen regiments of infantry of three battalions each, twelve battalions of chausseurs, five companies of three sections of three pieces each of machine gun troops, and twelve sections each with three pieces. The cavalry consists of nine regiments of the line divided into four squadrons, three regiments of independent cavalry divided into four squadrons, five regiments of brigade divided into two squadrons each, and five platoons. The artillery includes five regiments of field artillery, formed of three divisions of three four-gun batteries, five six-gun batteries of howitzers, three divisions of horse artillery, divided into three four-gun batteries each, three groups of mountain artillery each of three four-gun batteries, nine battalions of fortress artillery, of which three have six batteries each and six two batteries each, six batteries of independent fortress artillery, five parks and fifteen columns of ammunition. The engineers consist of five battalions, each of four companies, and there are five squadrons of the train. The Brazilian army is divided into troops of occupation and independent troops, there being for each group a separate organization. The territorial divisions on which the organization is based are as follows: I. Amazonas. II. Grao-Para. III. Maranhao et Piauhy. IV. Ceara et Rio-Grande-do-Norte. V. Parahyba et Pernambuco. VI. Alagoas et Sergvre. VII. Bahia et Espirito-Santo. VIII. Minas Geraes. IX. Rio de-Janeiro. X. São-Paulo et Goyaz. XI. Paraná et Santa Catharina. XII. Rio-Grande-do-Sul. XIII. Matto Grosso.

Government. The federal Congress consists of the Senate and the Chamber of Deputies. Senators, 63 in number, are elected by direct vote for nine years, three for each state and the federal district. There are 212 deputies, elected for three years. The president is elected for four years by direct vote and is not eligible for the succeeding term. He is assisted by a cabinet of seven ministers appointed by and responsible to himself. The president in 1913 was Marshal Hermes da Fonseca, elected March 2 and inaugurated November 15, 1910; vice-president, Wenceslao Braz Pereira Gomes; minister for foreign affairs, Lauro Severiano Muller.

HISTORY

Presidential Message. On May 5 President Hermes da Fonseca delivered a message to the federal Congress reviewing the recent work of his government in the establishment of well-equipped schools, the support of demonstration farms, the inspection of cattle, the promotion of agriculture, the fostering of the rubber industry, and the protection of Indians. In his opinion it was exceedingly important to complete the work of Baron Rio Branco in the further demarcation of the frontiers of French and Dutch Guiana. He congratulated himself on the satisfactory solution of the coffee valorization question, and expressed a desire to reach an agreement with Italy about the subsidized steamship lines.

The Rubber Industry. Great concern was felt about the rubber industry, the second largest export industry of the country. Owing partly to the competition of cheap "plantation rubber" from the far East, the rubber market was glutted and a crisis ensued. The federal government responded to the emergency by enacting measures designed to facilitate the transportation and stimulate the production of Brazilian rubber. On June 5 an important agreement was made between the federal minister of agriculture, the state of Para, and the rubber defense committee, for the reduction of the tax burdens on the industry. The state of Para agreed to reduce the export tax on rubber 10 per cent, annually for five years, and to invest 5 per cent. of the income from the rubber tax on the improvement of the means of transportation. The transportation and navigation companies, conciliated by promises of a larger volume of business, granted large reductions in their rates. In return, the federal government contracted to create an experiment station and rubber-refinery at Belem, Para, to build railways into the interior, to encourage industry and agriculture in the state of Para, and to build an immigrants' hotel for the encouragement of immigration to Para.

The government took further occasion for the exposition of its plans for the development of industry in a natural rubber exposition, opened at Rio de Janeiro on October 12.

Miscellaneous. Sr. Belfort Viera was succeeded as secretary of the navy by Sr. Alexandrino Alençar; it was reported that the new head of the marine department would sell the dreadnought *Rio de Janeiro*, then in process of construction by a British firm.—The new minister of finance, Sr. Rivadovia de Cunha Correa, prepared a budget in which expenditures of 93,385 milreis gold, plus 433,253 milreis paper, were more than balanced by estimated revenues of 132,584 milreis gold and 372,046 milreis paper. It was strongly recommended by the president that of the total revenue, about a million and a quarter, gold, should be set aside to purchase the equipment of the Amazon Wireless Telegraph and Telephone Company (American) in accord with the policy of government ownership of telegraph lines.—The secretary of education submitted to Congress a plan for the establishment of libraries in the capitals of all the states. A national congress of instruction was opened at Bahia, on July 4. At that same city, by the way, extensive harbor facilities had just been created. On February 1, the minister of agriculture concluded with the society for trade, industry, and agriculture a contract which provided for the importation and settlement of 10,000 European immigrant families.—According to a decision of the federal courts, the government was to turn over the imperial crown of the former monarchy to the present representative of the house of Braganza.

The Coming Elections. Before the close of the year the various political groups began to prepare for the general elections, which will take place on March 1, 1914. The Republican-Conservatives put forward Sr. Wenceslao Braz for president, and Sr. Urbano dos Santos for vice-president. The Liberals, who at present form the opposition minority, nominated Sr. Ruy Barbosa for president, and Sr. Alfredo Ellis for vice-president.

Foreign Relations. Relations between the United States and Brazil were somewhat strained as a result of the action filed by the Taft administration against the Brazilian valorization committee as the result of a controversy regarding the coffee trade. During the dispute 932,000 bags of coffee were held in New York. The most serious consequences of the misunderstanding was the suspension on April 9 of the preferential tariff on American products. The loss to American exporters can be appreciated when one recalls that the preference shown to American goods had amounted to thirty per cent. of the customs duty on flour, and twenty per cent. on typewriters, cement, corsets, clocks, watches, etc. During the brief period of suspension the loss to American manufacturers amounted to about $250,000 on flour alone. The valorization suit was speedily dismissed by the United States, and in the hope of establishing more friendly relations, the Secretary of State invited the Brazilian minister of foreign affairs to visit Washington. Brazil responded by restoring the preferential tariff and sent Dr. Lauro S. Müller to repay the friendly visit made by Hon. Elihu Root in 1906. For more than a month, from June 10 to July 16, Dr. Müller attended banquets and baseball games, luncheons, and receptions. At a banquet on July 10 Mr. Bryan eloquently commented on the significance of the visit and said, "I am sure this visit has convinced our guest of the genuine good will the American people feel toward his country, and all that concerns that nation. I want to tell the president and the people of Brazil that we are attached to that country by all the closest bonds of friendship, and I believe Dr. Müller's visit will be fruitful in future visits, fruitful in commerce, and fruitful in the splendid friendships that bind these two republics together." The government of Brazil was no less courteous. On June 14, Señor Alemeda, speaking in the Brazilian Senate, said, "Our foreign minister represents the high ideals of all South America in its efforts toward guaranteeing peace and general fraternization amongst the nations of this continent." During the course of this exchange of cordialities, it was remarked that the United States was Brazil's best customer for coffee and rubber, and that in 1912 the United States attracted more than one-fourth of Brazil's foreign trade—$189,789,604 out of a total of $670,212,140.

A protocol signed with Peru arranged for the organization of a commission to survey the frontier, in accordance with the treaty of demarcation of September 8, 1909. Extradition and arbitration conventions with Bolivia, and an arbitration agreement with Italy, were concluded. The Portuguese government sent a delegate to Rio de Janeiro to negotiate a treaty of peace and amity with Brazil. On May 9, plenipotentiaries of Brazil and Uruguay signed a convention establishing a new frontier line between the two republics on the river San Miguel. Uruguay recognized Brazilian navigation rights on the river, which has heretofore been exclusively Uruguayan.

BREAD. See Food and Nutrition.

BREEDING. See Stock-raising, and Biology.

BRETHREN, Church of the (also known as Dunkers or Dunkards). There are three groups of this denomination—the Conservatives, Progressives, and the Old Order. The first are the most numerous, numbering in the United States in 1913 95,000 communicants, 938 churches, and 3066 ministers. The Progressive branch is second in point of number. This had, in 1913, 20,394 communicants, 215 churches, and 192 ministers. The Old Order had about 4000 communicants, 72 churches, and 218 ministers. The Conservative branch maintains ten colleges and has one of the largest denominational training houses in the West at Elgin, Ill. It carries on missionary work in Europe and in India and China. The national conference of the denomination was held at Winona Lake, Ind., in June, 1913. The Progressive brethren maintained a college and publishing house at Ashlin, Ohio. In addition to these branches, there is also a small body known as the Seventh-Day German Brethren, which has about 250 communicants, 11 churches, and 8 ministers. It is found in the vicinity of Ephrata, Pa.

BREWING. See Liquors.

BRICK. See Clay-working Industries.

BRIDGES. Bridge construction during 1913 was active especially in the United States and, at the same time, many steps were taken towards improving practice and carrying on investigations for increased construction and efficiency in the long structures required. The making of lofty steel buildings and bridges now forms an important industry in the United States and the value of such structures erected in the United States in 1912 was estimated at over $400,000,000. an amount that was exceeded probably by 10 per cent. in 1913. It is, of course, impossible to distinguish between the amount of material going into bridges from that used for lofty buildings and similar structural work, but in bridge building, especially, there was manifested a continual demand for the use of the newer steels where nickel, vanadium, and other metals enter into the composition to give increased strength notwithstanding the fact that this is attended at greater cost. In this way the strength of the members of a bridge structure could be increased without increasing the weight, and this made possible longer spans whose weight, of course, had been the leading impediment hitherto to any increase in length. Furthermore in these new steels the effect of impact in very long spans is reduced so that higher unit strains can be used and types of construction subject to considerable vibration and deflection in short spans can be applied to longer spans with safety and efficiency. As a result it was suggested that the suspension type of structure could be used for spans longer than those in existence without any increase in the present size of individual members.

Perhaps the boldest conception of the year was involved in the preliminary designs and estimates prepared for an eight-track 3880-ft. suspended span across the North River at New York to carry railroad, electric, and highway traffic into New York City. An estimate of $42,000,000, for its construction was made by the promoters, but no positive action toward the adoption of the plans was taken. As regards actual construction, however, the most important bridge work was the 1800-ft. span of the $9,000,000 super-structure of the Quebec bridge. This was the largest span yet to be undertaken and probably no bridge ever designed or constructed had involved more research and investigation, particularly in view of the failure of the former structure at this site while under construction. Large scale carbon and nickel steel models of the members were tested to obtain an adequate idea of the ultimate strength of the alloy steel used and the engineers expressed their satisfaction at the efficiency of the connections and the details of construction provided for this structure. A bridge shop at Montreal was equipped for the construction of the Quebec bridge: the plant and machinery were both of the highest grade and of an unusual capacity, so that pieces up to 90 feet in length and 140 tons in weight could be machined and handled. This was said to have involved an expenditure of $1,000,000.

The construction of the East River bridge of the New York connecting railways, which, with its approaches mainly of viaducts, was begun in July, 1912, continued and the contract for the superstructure, consisting of a notable arch span of 977-ft. 5-in. in length, the longest yet essayed, and weighing 19,000 tons, was awarded to the American Bridge Company. This span will be 135-ft. above the water at Hell Gate.

New Mississippi River Bridge at Memphis. A new double-track railway and highway bridge 2015½ ft. in length was under construction during the year across the Mississippi River at Memphis, Tenn. The superstructure consists of two lines of pin-connected trusses 88-ft. in maximum depth and 32-ft. apart on centres carrying at the level of the bottom-chord two railroad tracks between them and two 14-ft. cantilever highways. In the middle of the river there is a 621-foot independent simple truss span which, next to the 668-foot spans of the St. Louis municipal bridge, is the longest of the kind yet built. The main cantilever span is 790 feet 5½ inches in length, thus making it one of the longest cantilever spans in bridge construction, with, of course, such notable exceptions as the Queensboro bridge and the Quebec bridge. The superstructure of the new Memphis bridge is 76 feet in the clear above high-water level and it is carried by reinforced concrete piers which have been carried down through deep water to pneumatic-caisson foundations. These piers are faced with granite and those for the main span have a height of 147 feet above the top of the caisson foundation, which is 46½ feet below low-water level.

Willamette Run Bridge. The Broadway bridge across the Willamette River at Portland, Ore., with a total length overall of 2987.5 feet, was completed and open to traffic on April 22, 1913. This bridge consists of two Pratt truss and four Baltimore truss spans, 125 to 297 feet long and a two leaf bascule span 278 feet long. There are also approach sections of plate-girder spans and retaining wall road-bed construction. The bridge affords a clearance in the centre of 65 feet at high water and 93 feet at the lowest stages, but by raising the bascule leaves sailing vessels, or ocean going steamers, can be passed through. The river piers were sunk by the pneumatic process to a maximum depth of 85.25 feet below water, and at the pier near the west shore the excavation was pushed to 73 feet below the river bed, with a total immersion of 101 feet, giving a pressure of 44 pounds. The substructure cost $607,820, while the contract price of the superstructure was $763,380,097. The bascule leaves are operated by two 75-horse power 600-volt motors and represent the most modern developments in this field. The bridge was designed and built under the supervision of Ralph Modjeski, of Chicago, the total cost to the city counting all expenses was about $1,600,000.

Ohio River Bridge. The Ohio River bridge at Kenova during the year was renewed, and as it had five 518-foot river spans about 100 feet above the water it presented erection features of difficulty and magnitude. The new trusses were outside of the old ones, being erected as cantilevers, while the latter were in service and were adjusted for final connection by vertical movement of the adjacent spans which were used temporarily as anchors.

Cumberland River Bridge. Among the bridge work of the year was the Cumberland River bridge of the Louisville and Nashville Railroad, a structure 3000 feet in length, including viaduct approaches at each end. The river section consisted of one 300-foot and three 200-foot through truss spans and three 135-foot deck truss spans, all riveted except the 300-foot span, which was pin constructed. The piers were of concrete and the foundations went down to bed rock, a distance of 130 feet below the bottom of the rails.

Bascule Bridges. During the year 1913 the Baltimore and Ohio Railroad completed a new double-track bascule bridge of the heel trunnion type, with a single-leaf span across the Calumet River at South Chicago. This span has a length of 230 feet on centres and replaces a horizontal revolving span occupying so much less room that it will be possible to construct on adjacent ground a similar span permitting a four-track crossing where previously only a double-track was available. The superstructure of the bridge consists of a 230-foot through riveted truss bascule span, a 65-foot approach, and a 50-foot plate-girder tower span, a tower approximately 70 feet in height, and a counterweight truss about 100 feet long pivoted on the tower and provided with a counterweight weighing 2200 tons and the operating mechanism. The bridge experienced a severe test in that it stood open with the truss vertical for almost a year without endangering either its safety or stability and without affecting its ultimate use. The bridge contains 2,800,000 pounds of structual steel, 305,000 pounds of machinery, and 1100 cubic yards of concrete in the counterweight. The tower and bascule trusses are of riveted construction, 31 feet 3 inches apart on centres and the main trusses are 39 feet deep. The counterweight trunnions and the pins through the counterweight links are 20 inches in diameter with babbitted bearings and bushings of phosphor-bronze. The delay in utilizing the bridge during the year was due to the fact that the adjacent drawspan of the Lake Shore and Michigan Southern Railroad, which is to be replaced by a new bridge of the bascule type, swings over the front pier of the Baltimore and Ohio span.

Canada. An important bridge project in Canada during the year was the renewal of the Lachine bridge, 3657 feet in length, across the St. Lawrence. This bridge was built originally in 1886 as a single-track structure and its replacement was effected without interruption of traffic or navigation. New double-track spans take the place of the old superstructure and the length of a number of the spans has been reduced by one-half by the construction of intermediate piers, a tendency that, it may be remarked by the way, has been noted in a number of important bridge renewals.

Notable bridge construction was in progress on the Canadian Pacific Railway. This line crosses the South Saskatchewan River with a bridge 3004 feet in length and having a maximum height of 147 feet. It consisted of eight spans of 240 feet in length with shore spans from 45 to 80 feet, all supported by concrete piers. This bridge was completed during the month of June, 1913.

A large reinforced concrete bridge was built across the Saskatoon River in Canada, consisting of 10 arches ranging from 25 feet to 115 feet, making it the largest bridge of reinforced concrete in Canada. It furnished an interesting problem in concrete construction, as the range of temperature was found to be 140 degrees.

Southwark Bridge, London. During the year it was definitely decided to replace the beautiful Southwark bridge over the Thames, which was completed in 1819, as it was deemed insufficient in capacity and on account of its deep approach grades. The old bridge was formed of 3 cast-iron rib spans, the centre one being 210 feet and the others 210 feet. For the new bridge the old abutments will be used and the spans will be the same number, the centre one being 140 feet 6 inches, the next two 131 feet 9 inches, and the abutment spans 123 feet. The headway will be reduced to a minimum of 26 feet, enabling the grades to be reduced to 3.3 per cent., while an increase will be made the width of the roadway, making it 35 feet and the sidewalks 10 feet, part of the latter being carried on cantilevers. Four new piers will be built, two at the centre being 15 feet wide and 42 feet high, and the others 14 feet wide and 41 feet high, being founded on steel caissons sunk under compressed air and filled with concrete. Each span of the bridge will consist of 7 steel ribs, ranging in depth from 3 feet 3 inches to 3 feet 6 inches.

France. A long viaduct for the railway from Miramas to L'Estaque in the south of France was under construction with a length of 3093 feet. The masonry had been completed at the end of the year and the steel superstructure was in progress, a draw span designed to be open only five minutes being one of the features of the work.

Switzerland. Several important reinforced concrete bridges were under construction in Switzerland. A bridge across the Aare, near Bern, at Halem, had a main arch of 286 feet span, 131 feet above the water, with four 68-foot 9-inch arches on the south side and two 32-foot 10-inch girders on the north side.

India. Progress continued during the year on the Sara Ghat, across the lower Ganges River, 150 miles north of Calcutta, in northern Bengal. This bridge was referred to in the YEAR BOOK for 1912 and consists of a truss structure of 15 through spans, 345 feet 1½ inches from centre to centre of bearings and 359 feet from centre to centre of piers, and six plate-girder deck-approach spans each 75 feet in length, the total length from abutment to abutment being about 5890 feet. Each main span is 52 feet deep at the centre and has a clearance of 40 feet above water at high water level and 71 feet at low water level, the rise of the river during the monsoon season, with its enormous discharge, rendering the design quite a difficult problem.

During the year the Bengal Northwestern Railway Company completed its 1¼-mile bridge at Allahabad, consisting of forty 150-foot spans. The doubling of the East Indian double-deck bridge over the Jumna at Delhi was completed in February, it being a structure with twelve 216-foot spans. A similar process of doubling was being undertaken with a bridge over the same river at Allahabad. The drawbridge over the Yalu of six 300-foot spans on the Antun-Mukden Railway was approaching completion at the end of the year.

EGYPT. A new bridge opened in Egypt during the year was the Manshura bridge over the Damietta branch of the Nile, 88 miles from Cairo and consisting of four 230-foot spans. The bridge at Jebba which had to carry the main line of the Nigerian Railway over the Niger was in progress during the year.

BRAZIL. A new bridge over the River Potergy, near Natal, the capital of the Rio Grande do Norte, Brazil, was under construction and had ten 164-foot spans.

BRIGGS, CHARLES AUGUSTUS. An American theologian and educator, died June 8, 1913. He was born in New York City in 1841. From 1857 to 1860 he studied at the University of Virginia, and at the Union Theological Seminary from 1861-62. He then took up studies in Germany and graduated from the University of Berlin in 1869. In the same year he became pastor of the Presbyterian Church at Roselle, N. J., remaining in that position until 1874, when he resigned to become professor of Hebrew and cognate languages in the Union Theological Seminary. In 1891 he was appointed to the chair of Biblical theology. For ten years beginning 1880 he was editor of the *Presbyterian Review*. In 1891 he was charged with heresy. These charges were based upon an address in which it was asserted that church and reason were each "the fountain of definite authority, which apart from the Scriptures may and does savingly enlighten men"; that "errors may have existed in the original text of the Holy Scripture"; that "many of the Old Testament predictions have been reversed by history"; that "Moses was not the author of Pentateuch"; that "Isaiah was not the author of a portion of the book which bears his name"; that "the processes of redemption extend to the world to come"; and that "sanctification is not complete at death." On these charges Dr. Briggs was acquitted by the presbytery of New York. The decision was appealed to the general assembly of the Presbyterian Church which suspended him. The Union Theological Seminary, in spite of this decision, refused to remove him from its faculty. Dr. Briggs entered the Protestant Episcopal Church, and was ordained clergyman of that denomination in 1899. Among his numerous published writings on theological subjects are: *The Bible, the Church, and Reason* (1892); *The Higher Criticism of the Hexateuch* (1893); *The Messiah and the Gospels* (1894); *The Messiah and the Apostles* (1895); *The Case of Dr. Briggs; General Introduction to the Study of the Holy Scripture; Ethical Teachings of Jesus; Commentary on the Psalms;* and *Fundamental Christian Faith* (1913). He was also editor of the *International Theological Library* and the *International Critical Commentary.*

BRIGGS, FRANK OBADIAH. Former United States senator from New Jersey, died May 8, 1913. He was born in Concord, N. H., in 1851 and graduated from the United States Military Academy in 1872. He was assigned as second lieutenant to the Second Infantry, which was then at Atlanta, Ga. He remained in the army until 1877, when he resigned to accept a position with the Roebling Company of Trenton, N. J. He soon became assistant treasurer of this company and head of several of its subsidiaries. In 1901 he was named by Governor Voorhees state treasurer. He was elected for the full term of three years by the legislature of 1902 and reëlected three years later without opposition. On the withdrawal of John F. Dryden from his seat in the Senate in 1907, Mr. Briggs was made his successor. He did not take a conspicuous part in the debates of the Senate and there was criticism of his vote on tariff questions. He was thought to be unduly solicitous regarding corporation interests. A faithful worker, his courtesy and simplicity made him one of the most popular members of the Senate.

BRITISH COLUMBIA. A province of the Dominion of Canada, between Yukon Territory on the north, the United States on the south, Alberta on the east, and the Pacific Ocean and Alaska on the west. Area, 355.855 square miles; population (1911 census), 392,480, representing an increase of 119.7 per cent. in ten years. Population of the principal cities (1911 census): Vancouver, 100,401; Victoria, the capital, 31,660; New Westminster, 13,199; Nanaimo, 8306; Prince Rupert, 4184. British Columbia became a province of the dominion July 20, 1871. The chief executive is the lieutenant-governor, who is appointed by the governor-general of Canada; he acts through an executive council (responsible ministry) of seven members. The legislative assembly consists of 42 members, elected by direct vote for four years. Lieutenant-governor in 1913, Thomas W. Patterson (since December 3, 1909); premier, Sir Richard McBride. See CANADA.

HISTORY

THE VANCOUVER COAL STRIKE. The intervention of the provincial government in a strike of the coal-miners on Vancouver Island attracted much attention throughout Canada and in the press of other countries. The trouble was a development of a one-day-strike of the employes of the Canadian Collieries Company at Cumberland, occasioned by the miners' belief that the company was neglecting to clear out the dangerous gases in a portion of the mines. The company refused to rehabilitate the strikers. As a protest against the lockout at Cumberland, the miners at Nanaimo, nearby, started a sympathetic strike on May 1, 1913. Over 3000 miners participated in the strike, and the coal industry on Vancouver Island was paralyzed. As the strike continued through May, June, and July, the miners' demands became more definite and more determined. First of all, they desired higher wages, better conditions of labor, and more careful provisions for safety of life—the fatalities had increased 200 per cent. in the last two years, they claimed. Secondly, they required the discharge of Italian and Chinese strike-breakers and the reinstatement of all the strikers. In the third place, they demanded recognition for their union—a local of the United Mine Workers of America. This last point was furiously denounced by the officials of the company on the ground that it was unpatriotic to allow Canadian industry to be controlled by a labor organization whose headquarters were in the United States. The strike was being engineered by foreigners, the employers pointed out, and must therefore, be dangerous to Canada. In reply, the *Federationist*, the labor organ of British Columbia, explained that the real objection to the U. M. W. of A. was not based on the patriotism of the employers, but on their fear lest the miners, backed by a powerful organization, would be able to enforce their demands for higher wages, for the abolition of the truck system, and for prevention of accidents. The controversy grew more heated, especially when strike-breakers were imported, and resulted in riots at Nanaimo on August 11, at Ladysmith and South Wellington on August 12 and 13, and at Extension on August 13 and 14. Although up to this time the strikers had been very peaceable, and were still willing to observe order if left unmolested by strike-breakers, Mr. Bowser, who had just become acting governor, thought it necessary to intervene. On August 15 he dispatched troops to Nanaimo and martial law was established on the island. Many strikers were arrested—258 in all—and detained for trial without bail. During their detention the prisoners were accorded the treatment due convicted criminals—a circumstance which subjected the government to much criticism. Finally in October Judge Howay sentenced five men to two years' imprisonment (the maximum allowed by law), twenty-three to sixteen months, and eleven to five months. The penalties imposed were unexpectedly severe, and in some cases unfair procedure was alleged. Many demonstrations were organized in protest, and the Dominion Trades and Labor Congress appealed to the minister of justice on behalf of the prisoners. The majority of the prisoners were tried at special assizes in Westminster later in the year. Meanwhile the strike continued, except at "Jingle Pot" mine, where the union demands were conceded. The trades and labor congress requested the Dominion minister of labor to compel the employers to submit to arbitration. Instead, Mr. Samuel Price was sent as a royal commissioner to investigate labor conditions on the island. He reported that the accident rate there was not so high as elsewhere and that the miners were well treated. This report failed to bring satisfaction, however, and was characterized by the labor press as grossly unfair and manifestly inaccurate.

BRITISH EAST AFRICA. See East Africa Protectorate, Uganda, and Zanzibar.

BRITISH GUIANA. A British colony on the northeast coast of South America, including the settlement of Demerara, Essequebo, and Berbice, with an area of 90,277 square miles and (1911) 296,041 inhabitants. Unenumerated aborigines were estimated at 10,000. Immigrant population (East Indians) on estates: 9141 under indenture, 38,120 not under indenture, 16,684 children; not residing on estates, 62,893; total, 126,838. Capital, Georgetown, with 57,528 inhabitants (1891). Excepting for the estates schools, the schools are denominational; 221 received government aid during 1911-12 amounting to £29,628; and accommodated 35,430 scholars. The cultivation of sugar-cane is the predominant industry, the 44 sugar estates in active operation covering 156,666 acres, of which 73,324 are devoted to sugar-cane. The 1911-12 export amounted to 99,368 tons of sugar (mostly Demerara crystals), 3,022,831 pf. gallons of rum, 146,740 gallons of molasses, and 5102 tons of molascuit. About 30,000 acres are under rice, the export for 1911-12 (6,686,820 lbs.) being valued at £40,163. Timber abounds. Gold export (1911-12), 51,196 ozs. (£190,733); diamonds, 6976 carats (£11,772). The total imports and exports (1911-12) amounted to £1,786,574 and £2,172.765 (£1,749,766 and £1,820,198 in 1910-11), inclusive of transit, £89,259 (£97,998). The Demerara Railway Company, Limited, runs a line from Georgetown to Rosignol (Beribice), 60½ miles, and one from Vreeden Hoop to Greenwich Park, 15 miles; and receives a government subsidy. A branch (18¾ miles) affords access to the gold diggings. Revenue and expenditure (1911-12), £593,498 and £588,625 (£563,100 and £542,757 for 1910-11). Public debt, March 31, 1912, £885,815. Governor (1913), Sir W. Egerton (July 5, 1912).

BRITISH HONDURAS. A British colony in Central America, south of Yucatan, having an area of 8598 square miles and a population numbering (1911) 40,510. Belize is the capital, with (1911) 10,478 inhabitants. Most of the schools are denominational, receiving government aid. The colony's important industry is wood-cutting, the export in 1911 consisting of 13,020,580 superficial feet of mahogany, 1,543,744 of cedar, and 3231 tons of logwood. Fruit is a considerable export: 450,365 bunches of bananas, 2,853,445 plantanis, and 5,198,899 cocoanuts in 1911. Sapodilla gum (3.219,990 lbs.), rubber (24,192 lbs.), sponges (9822 lbs.), and tortoise shell (3367 lbs.) are also produced. Total imports and exports for 1911 amounted to $2,886,677 and $2,685,849 respectively ($2,819,217 and $2,344,380 in 1910). Specie export, $18,200.

From Stann Creek a short railway leads inland; this line was practically finished by 1910, but much damage was done by floods in 1911, necessitating some reconstruction.

Revenue and expenditure (1911-12), $1,201,908 and $532,123 ($459,295 and $542,810 in 1910-11). Tonnage entered and cleared, 588,367. Governor (1913), Col. Sir. E. J. E. Swayne.

BRITISH INDIA. See India, British.

BRITISH NEW GUINEA. See Papua.

BRITISH NORTH BORNEO. The northern portion of the island of Borneo, with adjacent islands; it constitutes a protectorate, under the jurisdiction of the British North Borneo Company. Area, 31,000 square miles; population, about 208,000. Sandakan is the capital. There is a considerable trade in indigenous products. Agriculture has developed, and the export of tobacco is large. Coal, iron, and oil are present. There are 120 miles of railway. Imports in 1911, S S $4,603,071; exports, 4,836,795; revenue, 1,366,768; expenditure, 829,251. Shipping entered and cleared (1911), 353,308 tons. Governor in 1913, J. S. Mason.

BRITISH SOMALILAND. The camel constabulary corps of 150 men, established in 1912 under the command of Mr. Corfield to maintain order within a radius of 50 miles of Berbera, came into conflict on August 9 with a large force of dervishes at Dul Madoba. The constabulary corps lost 36 killed and wounded, but inflicted much heavier losses on the dervishes. Mr. Corfield, who was killed in the engagement, was freely criticized for venturing upon so disastrous an expedition into the interior, contrary to the policy of coastal concentration adopted in 1909. Nevertheless, Mr. Corfield's plan for pacifying the natives received subsequent vindication in a decision of the British government, whereby the camel constabulary was doubled in strength.

BRITISH WEST AFRICA. See articles on GAMBIA, GOLD COAST, NORTHERN NIGERIA, SOUTHERN NIGERIA, and SIERRA LEONE.

BROOKLYN RAPID TRANSIT COMPANY. See RAPID TRANSIT.

BROWN, ADDISON. An American jurist, died April 9, 1913. He was born at West Newbury, Essex County, Mass., in 1830. After graduating from Harvard College in 1852, he attended the Harvard Law School, beginning practice in New York City in 1855. After two years he entered the firm of Stanley, Langdell & Brown. In 1881 he resigned from this firm to accept an appointment as United States district judge for the southern district of New York. Judge Brown was notable for his clearness and the strength of his decisions. Many of these, taken to the United States Supreme Court, brought him much commendation from that tribunal. In addition to his legal interests he was a recognized authority in botany. He wrote the *Illustrated Flora of the United States and Canada* (1896, 1898). One of the founders of the New York Botanical Garden, he was at the time of his death its president, and also president of the Torrey Botanical Club of New York.

BROWN, HENRY BILLINGS. An American jurist, died September 4, 1913. Born in Lee, Mass., in 1836, and graduated from Yale College in 1856, he studied law privately, and attended lectures at the Yale and Harvard law schools. Admitted to the bar in 1860, in the following year he was appointed deputy United States marshal for the eastern district of Michigan. After serving in this office until 1863 he was appointed assistant United States attorney for this district; and in 1868 was appointed judge of the Circuit Court of Wayne County, Mich., but served in this position only a few months. He removed to Detroit and practiced there until 1875, when he was appointed United States district judge for the eastern district of Michigan. In 1890 he became an associate justice of the Supreme Court of the United States, and remained a member of it until 1906, when he retired. He was distinguished as an admiralty lawyer, and compiled the *Brown's Admiralty Reports*. While serving on the bench of the Supreme Court, his sight failed, and for a time he was nearly blind. Although he recovered partially, he never after saw distinctly.

BROWN, JOHN GEORGE. An American artist, died February 8, 1913. He was born in Durham, England, in 1831. After leaving school he was apprenticed to a glass cutter. His desire to become an artist caused him to work nights, sketching from memory people and objects that had caught his attention. His first art instruction was received at the School of Design in Newcastle. Subsequently he won a prize for the best drawing from the antique, while he was studying at the Royal Academy. He opened a London studio and began to paint portraits with a fair measure of success. In 1854 he came to this country, settled in Brooklyn, and secured employment in glass works in that city. Meantime he set up a small studio and looked about for commissions as a portrait painter. His chief artistic interest, however, was in the life of the streets, and he studied especially the characteristics of street urchins, and began to paint them. He sold his early pictures at small prices, but for "The First Cigar" he received one hundred and fifty dollars, and this work added greatly to his reputation. In 1860 he exhibited for the first time at the National Academy of Design and in the following year was made a member of the academy for his picture "Curling in Central Park." In 1869 he was elected president of the academy. He was also president of the American Water Color Society from 1887-94 and of the Artists Fund Society for ten years. At Paris in 1889 he received honorable mention, and a silver medal at the Buffalo Exposition. From 1899 to 1904 he was vice-president of the National Academy of Design.

BROWN, WILLIAM GARROT. An American historian, died October 19, 1913. He was born in Marion, Ala., in 1868, and graduated from Howard College, Ala., in 1886. At Harvard he took his A. B. degree in 1891 and A. M. in 1892. From 1893 to 1901 he was an assistant in the Harvard University library, was lecturer on American history at that university in 1901-02. He was the author of: *Official Guide to Harvard University* (1899); *The History of Alabama* (1900); *Andrew Jackson* (1900); *Stephen Arnold Douglas* (1902); *The Lower South in American History* (1902); *A Gentleman of the South* (1903); *The Foe of Compromise, and Other Essays* (1903); *The Life of Olliver Ellsworth* (1905). He also contributed to magazines and for many years was a regular editorial writer for *Harper's Weekly*.

BROWNE, FRANCIS FISHER. An American editor, died May 11, 1913. He was born in South Halifax, Vt., in 1843. He learned the printer's trade and attended high school at Chicopee, Mass. In 1862 he left school for service in the Civil War, enlisting in the 46th Massachusetts Volunteers. In 1866-67 he studied law at Rochester, N. Y., and at the University of Michigan. In 1869 he became editor of the *Lakeside Monthly*, and continued in this position until 1874. In 1878-79 he was literary editor of *The Alliance*. In 1880 he became editor of *The Dial* and continued to fill this post until the time of his death. Under Mr. Browne's editorship *The Dial* became one of the few authoritative literary and critical journals published in the United States. Mr. Browne was the author of *Every-day Life of Abraham Lincoln* (1886), *Volunteer Grain* (a volume of poems (1896). He edited many collections of prose and verse, including *Bugle Echoes*, a collection of poems of the Civil War, Northern and Southern. He also edited the "Laurel Crowned" series of standard poetry (1890-92). He was chairman of the committee of the congress of authors at the World's Congress Auxiliary of the Columbian Exposition in 1893. He was one of the founders in 1874 of the Chicago Literary Club, and was an honorary member of the Caxton Club of Chicago.

BROWN UNIVERSITY. An institution for higher education, founded at Providence, R. I., in 1764. The students in the autumn of 1913 numbered 976. Of these, 668 were undergraduates in the men's college, 203 under graduation in the women's college, and 100 graduate students. The faculty numbered 90. The faculty lost during the year two members by death —Lester F. Ward, LL. D., professor of sociology, and Prof. Thurston Phetteplace, assistant professor of mechanical engineering. Lucius Moody Bristol, Ph. D., was appointed professor of sociology and political science. The productive funds of the university on June 30, 1913, amounted to $336.847. The number of volumes in the main library was about 220,000. The president is W. H. P. Faunce, D.D.

BRUNSWICK, The Guelphs and. See Germany.

BRYAN, William Jennings, Secretary of State in the cabinet of President Wilson. He was born in Salem, Ill., in 1860, and he was educated at Whipple Academy and Illinois College, Jacksonville, Ill. He afterwards studied law at the Union College of Law in Chicago. He began practice in Jacksonville in 1883, but in 1887 removed to Lincoln, Neb. In 1890 he was elected to Congress as a Democrat, and was reëlected for a second term. During his two terms in the House he served on the ways and means committee and assisted in the preparation of the Wilson bill. In 1894 he was the Democratic candidate for United States senator, but on account of the election of a Republican legislature was not chosen. For several years he served as chief of the editorial staff of the Omaha *World-Herald*, and attended the Democratic national convention in 1896 as a representative of this paper. He was nominated for the presidency at this convention, and also by the Populist and Silver Republican convention of that year. He was defeated by Mr. McKinley. At the outbreak of the Spanish-American War, he raised the Third Nebraska Infantry and served as its colonel. He was renominated for the presidency in the Democratic convention of 1900, his nomination being again indorsed by the Populist and Silver Republicans, and was again defeated. Soon after he established *The Commoner*, a weekly paper devoted to political science, political economy, and sociology. In 1908, he was nominated for the presidency by the Democratic convention for the third time, and was for the third time defeated. After the election he devoted the greater part of his time to lecturing and editorial work until he was made Secretary of State on March 5,, 1913. See United States, sections *Cabinet, Diplomatic Service, Foreign Relations*, and any general article dealing with political history of the United States during 1913.

BRYN MAWR COLLEGE. An institution for the higher education of women, at Bryn Mawr, Pa., founded in 1885. On December 1, 1913, there were enrolled in the college 386 undergraduates, 77 resident graduates, and 5 non-resident graduates, or a total of 465. The faculty numbered 65. The college received among other gifts, a donation of $10,000,000 from Miss Mary E. Garrett for scholarship and other expenses. From other donors was received about $7000. In 1913 the Phoebe Anna Thorne Graduate School of Education was opened, and in connection with it the Phoebe Anna Thorne Open Air Model School. The new infirmary, given by the class of 1905 and erected at a cost of $47,000, was also opened during the year. The productive funds of the college amount to about $1,900,000, and the library contains 72,000 volumes. The president is M. Carey Thomas, Ph.D., LL.D.

BUBONIC PLAGUE. See Plague.

BUCHTEL COLLEGE. See Akron, University of.

BUCK STOVE COMPANY CASE. See Boycott, and Labor, American Federation of.

BUCKWHEAT. Estimates on the world's production of buckwheat are not published. The crop is largely grown in a supplementary way and the grain does not enter the world's markets on a very extensive scale. The acreage in any one country is generally limited and is subject relatively to greater variations than that of the more common crops. The acreage in England in 1913 was only 3686 acres, or over 26 per cent. less than in 1912. In the United States in 1913 805,000 acres were grown, or 36,000 acres less than in 1912, and the production was 13,833,000 bushels, as compared with 19,249,000 bushels the year before. The rate of yield was 17.2 bushels per acre, as against 22.9 bushels a year ago. The acreage in 1913 was the smallest since 1908 and the production the smallest since 1900. The farm price on December 1, 1913, was 75.5 cents per bushel and on this basis the crop value reached $10,445,000, the lowest since 1907. The crop was reported by the Department of Agriculture as grown in 24 States, the States leading in production and their yields being as follows: Pennsylvania, 5,180,000 bushels; New York, 4,004,000 bushels; Michigan, 900,000 bushels; and West Virginia, 798,000 bushels.

BUDGETS. See Municipal Government.

BUILDING. See Architecture and Foundations.

BUILDING OPERATIONS. The table on the following page shows the building operations in a number of leading cities of the country in 1911 and 1912.

Of the forty-eight cities included in this table, thirty-one showed increases in the cost of building, and seventy-one showed decreases. The total increase was $90,743,063, and the total decrease was $39,260,314, a net increase of $51,482,749. The greatest increase in 1913 was in New York City, the second was in Los Angeles. The greatest proportionate increase was in Atlanta, Ga. The largest decrease was in Chicago, and the largest proportionate decrease was in Fall River, Mass.

BUILDINGS, Height of. See City Planning.

BULGARIA. A constitutional European monarchy; one of the "Balkan states." Capital, Sofia.

Area and Population. The total area previous to the Balkan War was 37,199 square

City	1911 Number of permits or buildings	1911 Cost	1912 Number of permits or buildings	1912 Cost	Increase (+) or decrease (—) in 1912
Atlanta, Ga.	3,993	$ 6,142,077	3,529	$ 9,806,836	+$ 3,664,759
Boston, Mass.	3,547	19,379,396	4,410	26,755,652	+ 7,376,256
Brooklyn, N. Y.	9,223	37,218,384	11,408	40,537,784	+ 3,319.400
Buffalo, N. Y.	3,402	10,364,000	4,090	12,992,000	+ 2,628.000
Cambridge, Mass.	567	2,905,525	580	2,946,490	+ 40,965
Chicago, Ill.	12,586	103,272,000	10,751	83,175,900	— 20,096,100
Cincinnati, Ohio	11,228	12,688,540	5,386	8,660,264	— 4,028.276
Cleveland, Ohio	7,860	16,994,677	8,790	18,180,078	+ 1,185.401
Columbus, Ohio	2,694	4,668,277	2,656	4,675,303	+ 7.026
Dayton, Ohio	993	2,339,390	1,214	3,552,120	+ 1,212.730
Denver, Col.	2,410	6,084,260	2,254	5,332,675	— 751,585
Detroit, Mich.	6,667	19,012,670	7,991	25,588,470	+ 6,575,800
Fall River, Mass.	496	2,706,575	572	1,240,255	— 1,466,320
Grand Rapids, Mich.	1,312	2,520,296	1,433	2,456,516	— 63,780
Hartford, Conn.	1,305	5,896,244	1,277	7,379,525	+ 1,483,281
Indianapolis, Ind.	4,941	8,349,477	4,781	9,150,407	+ 800,930
Jersey City, N. J.	2,012	5,506,342	1,336	5,911,880	+ 405,538
Kansas City, Kan.	639	867,702	455	795,775	— 71,927
Kansas City, Mo.	3,736	12,818,103	3,953	12,127,079	— 691,024
Los Angeles, Cal.	12,498	23,004,185	16,455	31,367,995	+ 8,363,810
Louisville, Ky.	2,447	5,625,527	2,379	6,562,777	+ 937.250
Lowell, Mass.	564	1,500,269	572	1,291,649	— 208,620
Memphis, Tenn.	3,213	5,859,146	3,657	7,162,214	+ 1,303,068
Milwaukee, Wis.	4,360	12,299,375	4,361	15,257,162	+ 2,957,787
Minneapolis, Minn.	6,026	13,735,285	5,965	14,229,475	+ 494.190
Nashville, Tenn.	1,515	1,499,408	1,508	1,378,997	— 120.411
Newark, N. J.	a 2,460	a 10,975,334	2,937	11,628,358	+ 653,024
New Bedford, Mass.	950	2,601,150	940	2,400,050	— 201,100
New Haven, Conn.	1,196	5,868,519	1,330	4,762,341	— 1,106,178
New Orleans, La.	b 2,282	b 3,155,150	1,794	3,309,620	+ 154,470
New York, N. Y.	6,496	135,703,715	8,283	163,519,362	+ 27,815,647
Oakland, Cal.	3,946	7,132,566	4,058	8,821,950	+ 1,689,384
Omaha, Neb.	1,372	5,426,863	1,372	4,546,761	— 880,102
Philadelphia, Pa.	16,215	40,030,985	11,192	36,392,405	— 3,638,580
Pittsburgh, Pa.	4,392	11,963,257	3,890	11,530,531	— 432,726
Portland, Ore.	7,686	19,152,370	8,224	14,652,071	— 4,500,299
Providence, R. I.	2,755	5,524,200	2,856	8,530,800	+ 3,006,600
Richmond, Va.	1,528	6,018,699	1,631	6,255,711	+ 237,012
Rochester, N. Y.	3,680	9,389,775	3,888	12,035,466	+ 2,645,691
St. Joseph, Mo.	648	995,473	850	1,119,797	+ 124,324
St. Louis, Mo.	8,152	18,607,556	8,760	20,675,804	+ 2,068,248
St. Paul, Minn.	2,033	6,909,240	3,491	8,051,417	+ 1,142,177
San Francisco, Cal.	6,079	20,915,474	6,316	23,338,563	+ 2,423,089
Scranton, Pa.	787	1,969,454	676	1,716,491	— 252,963
Seattle, Wash.	10,959	7,491,156	9,819	8,415,325	+ 924,169
Syracuse, N. Y.	1,698	5,238,184	1,546	4,487,861	— 750,323
Washington, D. C.	4,678	14,464,548	5,048	17,593,848	+ 3,129,300
Worcester, Mass.	1,545	4,716,163	1,698	6,689,900	+ 1,973,737
Total	201,771	$687,506,961	202,857	$738,989,710	+$51,482,749

a Figures supplied by the Bureau of Statistics, Department of Commerce and Labor. The number of permits or buildings was estimated. b Public buildings were not included.

miles (northern Bulgaria 24,614, eastern Rumelia 12,585). The Treaty of Constantinople, signed September 29, 1913, settles the Turko-Bulgarian boundary as follows—from the mouth of the Maritsa the line follows the river to a point near Mandra, thence proceeds in a northerly direction to the west of Demotika and Adrianople; thence in an easterly direction, north of Kirk Kilise, to Seti Stefan on the Black Sea. (See TURKEY AND THE BALKAN STATES.) Total *de facto* population (according to the census of December 31, 1910. 4,337,513 (3,095,735 in northern Bulgaria and 1,241,778 in eastern Rumelia)—of whom 3,497,794 were Bulgarians, 466,117 Turks, 121,435 Tziganes, 79,787 Rumanians, 43,273 Greeks, 40,118 Jews, 21,145 Pomacs, 18,050 Tatars, 12,914 Armenians, etc. Sofia, the capital, had 102,812 inhabitants; Philippopolis, 47,981; Varna, 41,419; Ruschuk, 36,255; Plevna, 23,049. Marriages in 1909, 38 917; births, 172,583; deaths, 113,304. The Orthodox Greek is the national religion, but the Bulgarian church is not included in the Orthodox communion. The school attendance for 1909-10 was reported at 430,011.

AGRICULTURE. The rural population is industrious and frugal; but obstinately averse to the introduction of modern methods. Their implements are comparatively primitive, but an extremely fertile soil and a favorable climate combine to render the agricultural output the chief source of the country's wealth. The distribution of the soil in 1909 was as follows: 2,394,253 hectares in cereals, 523,371 in forage plants, 85,240 in vines, 60,259 in potatoes, etc., 25,231 in melons, etc., 13,215 in industrial plants, 11,088 in legumes, 8277 in orchards and gardens, 7621 in rose-fields—3,130,279 acres in all under cultivation; fallow, 742,498: 3,872,777 hectares, grand total. Details of the cereal crop follow:

	Hectares		Quintals	
	1912	1911	1912	1911
Wheat	1,120,500	1,118,409	17,350,000	19,596,528
Rye	215,000	220,721	3,150,000	3,751,176
Barley	260,000	251,[illegible]78	4,000,000	4,425,593
Oats	160,000	180,797	1,750,000	2,967,735
Corn	650,000	631,935	14,000,000	7,770,420
Rice	3,000	2,319	30,000	30,238

COMMERCE AND COMMUNICATIONS. Import and export values, with the value of the cereal export, are shown below, in leva:

	1909	1910	1911
Imports	160,430,000	177,356,723	199.345,000
Exports	111,434,000	129,052,205	184.634,000
Ex. cereals.	....	80,811,200	129.390,000

Some details of the 1911 trade showing values of principal articles in thousands of leva are given in the following table:

Imports	1000 L.	Exports	1000 L.
Textiles	57,973	Cereals	129,390
Machinery, etc.	25,612	Animal prods.	18,135
Metals, etc.	23,811	Animals	8,341
Skins, etc.	13,348	Perfumes	7,457
Col. prods.	10,579	Textiles	6,842
Woodwares	8,825	Skins	3,612
Drugs, etc.	6,507	Col. prods.	1,845
Resins and oils	4,398	Metals	904

Austria-Hungary contributed imports valued at 48,216,000 leva, and received exports valued at 10,567,000; Germany, 39,837,000 and 22,912,000; United Kingdom, 30,034,000 and 24,237,000; France, 24,927,000 and 11,119,000; Turkey, 15,986,000 and 29,210,0000; Italy, 9,118,000 and 3,948,000; Belgium, 5,047,000 and 53,790,000. The number of vessels entered during 1911 was 18,818, of 4,951,452 tons; cleared, 18,792, of 4,934,559. The merchant marine contained five steamers (2776 tons) and three sailing (402).

COMMUNICATIONS. Railways in operation in 1911, 1928 kilometers, owned and operated by the state; under construction, 305 kilometers. State telegraph lines, 6521 kilometers; wires, 15,219; offices, 350. Post offices, 2220.

After the declaration of peace between Turkey and Bulgaria, the construction of a national railway connecting old Bulgaria with the Ægean Sea through Bulgarian territory became necessary as the old line to Dedeagatch went through Turkish territory. The new line decided upon in a cabinet council was to start from a station on the Philippopolis-Adrianople line, pass through Haskovo and Kirdjaldi, and terminate at Porto Lagos. This line would be 108 miles in length and would cost $5,000,000, requiring three or four years for its construction, on account of the engineering difficulties involved.

FINANCE. The unit of value is the lev, worth 19.3 cents. The revenue for 1911 amounted to 178,445,300 leva (173,389,493 for 1910), and the expenditure to 178,395,443 (163,451,041). The 1912 budget follows:

Rev.	1000 l.	Expend.	1000 l.
Customs, etc.	68,590	War	40,551
Direct taxes	39,841	Debt	40,148
Transport dues	33.890	Railways, etc.	25,467
Revs. & domains	14,225	Instruction	24,916
Licenses	11,036	Interior	11,032
Leases	9,770	Finance	8 575
Fines	1,080	Public works	8,537
Other	11,891	Agriculture	7,283
		Foreign affairs	6,458
Total	190,273	Justice	6,848
		Commerce	5,742
		Administration	3,560
		Other	362
		Total	188,929
		Extraordinary	25,056

The public debt stood, January 1, 1912, at 623.346,807 leva.

NAVY. The fleet contained at the opening of the war with Turkey six first-class torpedo boats, of 600 aggregate tons; one cruiser, of 735; two yachts, one transport, two second-class torpedo boats (twenty tons each), and some small craft.

ARMY. The army of Bulgaria during 1913 had a continued test of its organization and usefulness in the field. The sectional war in the Balkans continued the need of troops, and a large number of volunteers were enlisted, while the older reserves and militia were brought into service. Naturally this led to the formation of new divisions and the extension of the army from its previous theoretical basis of organization. As a result of the military operations accurate statistics, or returns, are impossible to secure, but under the head of TURKEY AND THE BALKAN PEOPLES will be found discussed the part played by the Bulgarian army in the events of the year.

GOVERNMENT. The king (Ferdinand I. in 1913) is the executive, aided by a responsible ministry. The Sobranje (national assembly) has 213 elected members; the Grand Sobranje is composed of 426 deputies. Heir-apparent, Prince Boris. The ministry as composed July 4, 1913, was as follows: Dr. V. Radoslavov, premier and minister of the interior; Dr. N. Ghenadiev, foreign affairs; Dr. D. Tontchev, finance; P. Pechev, instruction; C. Popov, justice; C. Boyadjiev, war; J. Bakalov, commerce, etc.; Dr. P. Dintchev, agriculture, etc.; D. Petcov, public works; N. Apostolov, railways, etc.

HISTORY

OUTCOME OF THE WARS. The chief interest in Bulgaria in 1913 centred in the Balkan War —at first in the spectacular victories of Bulgaria in league with Greece, Servia, and Montenegro against the Turks, and subsequently in the tragic military collapse of Bulgaria before the combined assault of her former allies together with Rumania and Turkey. Both phases of the Balkan War are treated under TURKEY AND THE BALKAN PEOPLES (q.v.). The struggle cost Bulgaria dearly. An official list published on May 13, gave the country's losses in the first part of the war as 330 officers and 29,711 men killed, and 950 officers and 52,550 men wounded, while 3193 had disappeared. In December General Boyadieff, minister of war, stated that the whole war had cost Bulgaria about 100,000 men and over $300,000,000 in direct, public outlay. A royal decree of October 14 abolished the state of siege which had existed in Bulgaria since September 30, 1912, and thenceforth the country resumed a more normal appearance. On October 16 a force of 25,000 men, under the command of General Tosheff, was dispatched to Thrace to reoccupy the territories finally left to Bulgaria by the treaty of Constantinople. The transfer from Turkish to Bulgarian hands was completed in November without disturbance, and General Tosheff, as military governor, promised to treat Christian and Musselman inhabitants alike. At about the same time the joint commission appointed to delimit the district ceded by Bulgaria to Rumania, completed its work, and it was reported that the commission delimiting the new Serbo-Bulgarian frontier was making satisfatcory progress. By the close of the year Bulgaria had resumed diplomatic relations with all the Balkan states except Servia and Greece. Relations between Greeks and Bulgarians in Thrace were very much strained.

DOMESTIC POLITICS. The special session of the Sobranje, held from February 28 to May 13, was chiefly concerned with necessary legislative enactments affecting the conduct of the war. Probably its most important act was the authorization of an extraordinary military loan of 50,000,000 leva. The successful conclusion of the treaty of London on May 30 greatly enhanced the prestige of King Ferdinand and of the Progressist-Nationalist cabinet headed by M. Gueshoff, but, in the latter case, only for a short time. A people intoxicated by swift and decisive victories against the Turks, thoroughly convinced of their own commanding position in the Balkan peninsula, were by no means willing to brook any real concession to Servia or Greece in the division of spoils. M. Gueshoff, appreciating the state of mind of his countrymen and yet aware that Russia would not tolerate the full realization of Bulgarian aspirations, resigned office in June. The new cabinet, which was thereupon formed, represented a coalition, as before, of the Progressist and Nationalist parties, but its head, Dr. Daneff, was known as a diplomat of ability and experience, and as a pronounced Russophil he was expected to reap from the war very great results for his country. The members of the cabinet were as follows: Dr. Daneff, premier and foreign affairs; M. Madjaroff, interior; M. A. Ludskanoff, agriculture; M. D. Bouroff, commerce and industry; General Kovatcheff, war; M. Christoff, railways and posts; and the members of M. Gueshoff's cabinet who held the posts of finance, public instruction, justice, and public works.

It was intended that the ministry should be a patriotic group recruited from all parties, and in fact M. Malinoff, the Democratic leader, promised his parliamentary support; but Dr. Radoslavoff, the leader of the Liberal party, persistently held aloof. When on June 14 Dr. Daneff formally assumed office, he found the treasury exhausted, the harvests spoiling for want of reapers, and foreign relations in confusion. The situation was exasperating. On one side, his own desires and the firm determination of the nation prevented Dr. Daneff from making concessions to Greece or Servia, or from securing a Balkan ally by granting favors to Rumania or Turkey, and on the other side a diplomatic deadlock between Austria-Hungary and Russia deprived him of the support of any of the great powers. And thus within a month of taking office, Dr. Daneff involved Bulgaria, now isolated and friendless, in war with Servia, Greece, and Montenegro, and with Rumania and Turkey as well (see TURKEY AND THE BALKAN PEOPLES). Before the onslaught of such numerous enemies the Bulgarian defense collapsed, and it was charged that the *débâcle* was in part due to the failure of the ministry to work in harmony with the generals in the field. Consequently, in July, in the midst of the war, Dr. Daneff handed in the resignation of his cabinet. M. Malinoff, the Democratic leader, was then requested to form a ministry of all parties, but after four days he acknowledged his inability to do so. Then Dr. Radoslavoff formed a cabinet solely from the Liberal party, and in conjunction with M. Toncheff, minister of finance, set to work to extricate Bulgaria from the most crucial position in her history since the abdication of Prince Alexander of Battenburg.

The immediate task of Dr. Radoslavoff's ministry was to secure peace at any cost. This was effected by the treaties of Bucharest (August 10) and Constantinople (September 29). On October 6 the king signed a decree authorizing the completion and reconstruction of the cabinet. Four vacancies were filled and several portfolios were exchanged. As finally rearranged the ministry was constituted as follows: Premier, Dr. Radoslavoff; foreign affairs, Dr. N. Genadieff; public instruction, M. P. Pesheff; finance, M. D. Toncheff; justice, M. C. Popoff; war, General Boyadieff; agriculture, M. P. Dintcheff; commerce and industry, M. T. Bakaloff; public buildings and roads, M. D. Petcoff; railways and posts, M. M. Apostoloff. The striking feature of this cabinet was that its new members, Dr. Genadieff, M. Apostoloff, General Boyadieff, and M. Popoff, were all Macedonians, the first two being natives of Monastir and the other two of Ochrida. It was the first occasion on which Macedonians had been entrusted with portfolios.

RUMORS OF ABDICATION. King Ferdinand was much chagrined by the outcome of the Balkan War, and in many quarters was personally blamed, though apparently quite unjustly. On October 6 he left Sofia ostensibly in order to visit relatives in Austria, and rumors became prevalent that he was determined to abdicate the throne unless he could gain positive assurance of good-will and assistance from Austria-Hungary. After a prolonged absence, however, he returned to Sofia on November 29, and was received cordially if not enthusiastically.

GENERAL ELECTION. A general election for the Sobranje took place on December 7. Ninety-five supporters of the government were returned, while the remaining 109 members were distributed among the seven groups comprising the opposition, as follows: Agrarians, 47; "Narrow" Socialists, 20; "Broad" Socialists 17; Democrats, 14; Radicals, 5; M. Gueshoff's party, 5; Zankovists (Dr. Daneff's party), 1. For the first time on record more than half the electors exercised the franchise, and the system of proportional representation, initiated at this election, afforded a fairer representation to minorities. The Socialists showed noteworthy gains. It was predicted that the ministry, which had suffered defeat at the polls, would effect a coalition that would enable it to retain office.

BUREAU OF CORPORATIONS. In the report of the Bureau of Corporations submitted December 22, Commissioner Luther Conant, Jr., presented a brief review of the work of the bureau during the ten years since its establishment. He pointed out that in general it had stood not only for publicity of corporate affairs, but also for the maintenance of competition in business. He pointed out that there has grown up a fairly widespread opinion that the effort to maintain competition should be abandoned, and that the inevitability of monopoly under governmental regulation should be recognized. While granting that the subordination of competition to regulation must be conceded so far as railroads and other public utility corporations are concerned, the commissioner held that the attempt to preserve competition in other fields should not be abandoned without a more extended and persevering effort. He showed that experience in the regulation of monopoly could be gained at the same time, so that in the event of failure to maintain competition the experience of an organization necessary to effective regulation of monopoly would be available.

He recalled that the bureau had made investigations of the petroleum, the steel, the

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KING FERDINAND AND QUEEN ELEANORA OF BULGARIA

Photos by Paul Thompson, N.Y.

THE BULGARIAN DELEGATES LEAVING ST. JAMES PALACE, LONDON, AFTER SIGNING PEACE TREATY ON MAY 30, 1913. DR. DANEFF, BULGARIAN PRIME MINISTER, IN THE CENTRE

lumber, the beef, and the tobacco industries; that it had inquired into the control and development of water power; transportation by water, including the ownership of terminals; cotton exchanges, and the taxation of corporations. The International Harvester Company had also been the object of one of its investigations (see below). In all of these inquiries the bureau has striven to maintain an attitude of discrimination and of scientific candor. As a result the findings of the bureau have been well received by the public, and have had much weight of authority. These findings have furnished the basis of judicial proceedings against the Standard Oil Company, the United States Steel Corporation, and the American Tobacco Company. The bureau's report on transportation of petroleum in 1906 was soon followed by the voluntary elimination of many discriminations among shippers. Its report on the petroleum industry was likewise followed by the abandonment of several competitive methods; so also the exposition of unfair practices in the tobacco industry led to their elimination. The report on cotton exchanges led to the introduction of new rules; while that on cotton tare, though recent, bids to have similar results. The Steel Corporation had been led to surrender its monopolistic control of Lake Superior ore by the bureau's report on the steel industry. All of these were the beneficial results of the publicity given to clear and unprejudiced information.

In view of past experience the commissioner pointed out that the work of the bureau would be greatly facilitated and its power as an agent of publicity would be greatly increased should a law be enacted requiring the automatic submission to the bureau by large corporations engaged in interstate commerce, of data regarding their capitailzation, properties, valuations, earnings, and personnel at regular intervals without definite solicitation by the bureau.

The bureau issued a report on "Control of Water Carriers by Railroads and by Shipping Consolidations." This was the result of inquiries regarding transportation on the Great Lakes and along the Atlantic seaboard. It showed that the regular lines of shipping on the lakes are controlled by railroads, being usually western connections of roads terminating at Buffalo. Rates of transportation by water-and-rail are slightly under all-rail rates. On the Atlantic seaboard the Merchants' and Miners' Transportation Company is controlled by the New Haven Railroad. Other lines are northern extensions of southern roads terminating at Gulf or Atlantic ports; others constitute a coastwise combine; Long Island Sound lines are controlled by the New Haven Railroad; and other lines north of New York and Boston constitute the Eastern Steamship Corporation. The report showed clearly that, although the ocean itself may be free, terminals and suitable connections with land transportation are subject to considerable monopoly control. The report, however, showed that there were some carriers on the lakes, notably those transporting coal and phosphate rock, which are not subject to such control. It would seem that in the absence of competition, the extension of governmental control of rates for water transportation is reasonable.

Report of the Bureau of Corporations on the International Harvester Company, issued in March (pp. xxiii., 284), in addition to a summary contains chapters on: Conditions before formation; organization of the company; capitalization compared with investment in 1902; subsequent development; profits and prices; productive efficiency and financial resources; competitive methods. Though the principal cause of consolidation was competition, nevertheless the bureau found that the total profits of the five combining companies for the period 1898-1902 were $43,000,000. The original capitalization of $120,000,000 was, in the estimate of the bureau, about $11,000,000 more than the physical valuation. This, however, may have been covered by good will. As regards efficiency, the bureau found the average cost in trust plants much lower than in independent plants, due mainly to large-scale production. The selling expenses of the combine, however, were relatively greater than those of independents, due to the trust's elaborate selling organization. The great financial resources of the company give it the completest benefits of large-scale production, and numerous advantages in selling, including ability to grant long time credit. As to competitive methods, the report stated that the company had resorted to various unfair practices, including bogus independents, factors' agreements requiring agents to handle company lines exclusively, suggested retail price lists, designating prices and terms, and misrepresentation of competitors. These practices were resorted to less frequently in recent years. By acquisitions and extensions the company was found to have acquired great importance in branches of the farm-machinery industry other than harvesters. The profits on net assets were computed by the bureau at 12½ per cent. for 1909-1911. The trust was found to be selling at higher prices abroad than at home, but in some lines at a lower margin of profit.

BUREAU OF SOCIAL HYGIENE. This bureau was established in 1912 by John D. Rockefeller, Jr., Starr J. Murphy, Paul M. Warburg, and Katherine B. Davis. It purchased eighty acres of land near the New York State Reformatory for Women at Bedford, and erected thereon an extensive laboratory. This was in charge of Miss Davis, who was head of the reformatory. The purpose of the bureau is to work out for the courts the scientific method of disposing of girls convicted of crime. It will especially seek out the psychological, social, and pathological conditions which predispose girls to a wayward life.

The bureau undertook a thorough and comprehensive study of vice conditions in New York City under the direction of George J. Kneeland, who had been in charge of the work of the Chicago Vice Commission; of vice conditions throughout the United States and a similar study of Europe, through Abraham Flexner, and an investigation of European police systems by Raymond Fosdick. Mr. Kneeland's study, *Commercialized Prostitution in New York* (Century Company); covered the period from January to November, 1912. He investigated 142 parlor houses, 1172 resorts, 112 furnished-room assignation houses, 90 disorderly hotels, and 300 massage parlors, of which 75 were blinds for vice resorts. The investigators counted nearly 15,000 prostitutes, of whom nearly 7000 were on the streets. Details are given of the receipts and expenses of resorts of different

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grades and the part played by madames, procurers, brothel-keepers, liquor venders, and slavers. It showed clearly that exploitation for profit is the mainspring of social vice, the profit in selling girls, in selling their services, in selling clothes for them, in selling liquor to their customers and in renting houses and apartments for them. Details are given of saloons, concert halls, cabaret shows, dance halls, burlesque theatres, amusement parks, and excursion boats which cater to vice. The report also set forth the open and brazen manner in which the men in control of the white slave trade buy and sell their "slaves" and properties, and purchase protection from the police. See Prostitution.

BURLEIGH, Edwin Chick. An American public official, elected United States representative from Maine in January, 1913 (see Maine). He was born in Linneus, Me., in 1843. At the outbreak of the Civil War he enlisted for service, but illness prevented his passing the medical examination. He served in the office of the State adjutant-general and the State land office from 1870-76. The two years following he was assistant clerk in the State House of Representatives, and from 1880-84 he was a clerk in the office of the State treasurer. He was elected State treasurer in 1885, serving until 1889. In 1889 he was elected governor of the State, serving until 1892. In 1897 he was elected to the Fifty-fifth Congress and was reëlected successively to all Congresses up to the Sixty-first. Mr. Burleigh was a successful candidate in the primary election held in September, 1913. His election to the legislature resulted from a combination of Republican and Progressive members.

BURLESON, Albert Sidney. An American lawyer and public official. Postmaster-General in the cabinet of President Wilson. He was born in San Marcos, Texas, in 1863, graduated from the University of Texas in 1884, and admitted to the bar in 1885, in which year he became assistant city attorney of Austin, Tex., holding this office for five years. In 1891 he was appointed attorney for the twenty-sixth judicial district, Texas. He was elected to the Fifty-sixth Congress in 1899 and was reëlected to successive Congresses up to and including the Sixty-third. He took a prominent part in the campaign for the nomination and election of President Wilson.

BUSINESS CONDITIONS IN 1913. See Financial Review, and Banks and Banking.

BUSINESS FAILURES. See Financial Review.

BUTLER, Nicholas Murray. See Arbitration, International.

BUTTER. See Dairying.

CABINET. See United States.

CALGARY. See Commission Plan, Garbage and Refuse, and Municipal Government.

CALIFORNIA. Population. The population in 1910 was 2,377,549. According to the 1913 estimates of the Bureau of the Census, the population then was 2,667,516.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the table at top of next column. The figures are from the United States Department of Agriculture, and those of 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	55,000	1,815,000	$1,597,000
	1912	52,000	1,924,000	1,635,000
Wheat	1913	300,000	4,200,000	3,900,000
	1912	370,000	6,290,000	5,850,000
Oats	1913	210,000	6,636,000	3,982,000
	1912	200,000	7,800,000	4,290,000
Rye	1913	8,000	120,000	90,000
	1912	8,000	141,000	127,000
Rice	1913	6,100,000	293,000	127,000
	1912	1,400,000	70,000	64,000
Potatoes	1913	68,000	8,092,000	5,664,000
	1912	78,000	10,140,000	6,591,000
Hay	1913	2,400,000	[a] 3,600,000	48,600,000
	1912	2,500,000	3,825,000	52,402,000

[a] Tons.

Mineral Production. The total value of the mineral products of the State in 1912 was $92,837,374, compared with $90,620,644 in 1911. The mine production of gold in 1912 was valued at $19,713,478, compared with $19,738,908 in 1911. The total gold output in placers from copper-lode and zinc ores decreased in 1912, but the production from siliceous ores increased nearly an equal amount. The deep mines yielded $11,078,815, and the placers produced $8,845,653. Dredges produced 85.9 of the placer yield in 1912, and 38.6 of the total yield. The leading counties in gold production in 1912 were Amador $2,796,194, Yuba $2,753,408, Butte $2,346,229, Nevada $2,081,958, Sacramento $1,712,587 and Tuolumne $113,291. The silver production of the State in 1912 was 1,300,136 fine ounces, compared with 1,270,245 ounces in 1911. The larger part of the output, 792,445 ounces in 1912 came from smelt and copper ores.

California is the largest producer of petroleum. The production in 1912 was 86,450,767 barrels, compared with 81,134,391 barrels in 1911. The average price received for oil in the State in 1912 was 45.4 cents per barrel, compared with 47.7 cents in 1911. The features of particular interest during 1912, were the development of large wells of unusual length in the La Habra Valley field, a continued development of large gushers in the valley fields, and the decline in the old Santa Maria field. The Coalinga territory was extended by the devolopment of good wells to the south, and its value was enchanced by the increased utilization of natural gas including the enterprise for piping natural gas from the valley fields to Los Angeles, and by the increased amount of gasoline obtained by compressing natural gas. The Midway field in Kern County is the largest producer. In this field there were taken in 1912 23,928,368 barrels of petroleum. From Coalinga field in Fresno County there were taken 19,911,820 barrels, and from the Kern River fields in Kern County, were taken 12,558,439 barrels. The total number of productive wells in the State at the end of 1912 was 5947.

The production of copper in 1912 was 31,516,471 pounds of blister copper, compared with 35,835,651 pounds in 1911. The reduction in output for the State since 1911 was due to the necessity of eliminating, from the smelter-smoke, ingredients injurious to vegetation. This resulted in the shutting down of all but one of the smelters in the Shasta County district. At the close of 1912 California produced about 518,487,000 pounds of copper. In total output the State ranks fifth among coffee producers, and for yearly production in 1912 it ranks seventh. Four plants treated copper ores in the State in 1912. The main production comes from two districts—the Shasta and Foothill districts, although numerous other districts have small outputs, and copper minerals are widely distributed over the State.

The total production of coal in 1912 was 10,978 short tons, valued at $23,601. On account of the large production of petroleum in California and its use for fuel, coal-mining in the State has practically ceased.

California is one of the most important producers of clay products. The total value of these products in 1912 was $5,912,450, an increase of $996,584 over the product of 1911. The chief clay product is common brick, which is valued at $2,198,303.

EDUCATION. The total enrollment in the public schools of the State in 1913 was about 430,000, and the average daily attendance was 400,000. The teachers numbered about 1450, and the average yearly salary for male and female teachers was about $900 a year.

FINANCE. The total receipts for the biennial period July 1, 1910, to June 30, 1912, amounted to $39,323,132, and the disbursements to $36,620,818, leaving a balance on hand on June 30, 1912 of $9,903,533. The balance at the begining of this period was $7,201,219. The chief receipts are from the taxation of franchises and from county taxation. The total bonded indebtedness of the State on June 30, 1912, was $6,068,519.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State with their populations in 1913 are as follows: Industrial Home for Adult Blind, 113; Whittier State School 136; Preston School of Industry 513. These are all reformed schools. In the Stockton State Hospital, were 2100 patients; in the Napa State Hospital 1990; in the Agus State Hospital 1356; in the Mendocino State Hospital 1022; and in the Southern California State Hospital 1970; or a total of 8438. Sonoma State Home has 228 inmates. There were 1913 prisoners in the San Quentin State Prison, and 1136 in the Falsam State Prison. The total number in all State institutions was 13,280. The legislature of 1913 provided for two new State institutions, a State training school for girls, and a new physchopathic State hospital. The State board of charities was given additional duties, including that of licensing maternal hospitals, boarding homes for children, etc.

POLITICS AND GOVERNMENT. The political history of the State in 1913 had, to a large extent, a national complexion, as the result of the passage by the legislature of a bill limiting the ownership of land by aliens, and directed toward eliminating Japanese as owners and proprietors of land. This movement logically followed other attempts to limit the rights of Japanese in California. The first of these was in 1906, when the Japanese, as a result of the shortage of native labor in California and the consequent higher scale of wages, began to come in large numbers from Hawaii to California and other coast States. The Japanese immigration was bitterly opposed by the labor element of San Francisco, which was then in political control. This feeling manifested itself in riots, in which Japanese were assaulted, and in an attempt to prevent Japanese children from attending public schools of that city. The difficulty was overcome through the efforts of President Roosevelt. The legislature of 1909 attempted to pass various stringent measures which prohibited Japanese ownership of land, segregated Japanese children in schools, and placed other restrictions upon the Japanese and other Orientals. President Roosevelt again interfered, and as a result of his protests to the governor and the legislature, these bills were dropped.

The legislature of 1913, early in its session, passed a measure advocating the extension of the Chinese exclusion act to all Asiatics. This bill was passed, and the attitude of the legislature foreshadowed other measures restricting the rights of land ownership by the Japanese. On April 15, the Assembly passed a measure prohibiting the ownership of land, in terms which were offensive to the Japanese government. At the same time a bill was introduced in the State Senate which was less stringent in its terms, but which also called forth protests from Japan. The Assembly bill provided that an alien may acquire property and hold it for one year, after which it may be taken by the State by a suit brought by the district attorney or the attorney-general. In order to hold property longer than a year the alien must declare his intention to become a citizen. Property must not be leased to any alien for a period of more than five years. The most significant section of the bill was that which provided that every corporation, the majority of the issued capital stock of which is owned by aliens ineligible to become citizens of the United States, shall be considered an alien within the meaning of the act. This was regarded by the Japanese as a discrimination, for it was held in California that the Japanese are ineligible to become citizens. The Senate bill limited the power of all aliens to hold and lease land, and in terms it promised to protect all treaty rights. It did not discriminate against aliens not eligible for citizenship. This bill called forth informal protests from several countries other than Japan.

The importance of the points at issue as related to the friendly relations between Japan and the United States seemed so important to President Wilson that on April 19 he sent to Governor Johnson, and through him to the legislature and the people of California, two telegraphic letters. In the first of these, which was sent in the name of Secretary Bryan, the President advised against the use of the words "ineligible to citizenship" contained in the Assembly bill. He stated that he preferred the bill which was pending in the Senate because it omitted these words. In the second of the letters, which was signed by the President himself, he said: "If they (that is, the California legislature and people) deem it necessary to exclude all aliens who have not declared their intention to become citizens from the privileges of land-ownership, they can do so along lines already followed in the laws of many of the other States and of many foreign countries, including Japan herself."

The dispatch of these letters was followed by a proposal from President Wilson that Mr. Bryan should visit California, if such action were agreeable to the California legislature, for the purpose of counseling and coöperating with its members in framing a law which would meet the view of the people of the State, and yet leave untouched the international obligations of the United States. Governor Johnson and the legislature promptly indicated that they would welcome such a visit.

On the receipt of the telegram announcing that Secretary Bryan would be a welcome visitor, the latter started for California. He was received with respect and cordiality, and his suggestions and representations were listened to with attention. It was evident, however, that the sentiment of the legislature was for immediate action by the State in the form of a law leaving to the courts the interpretation and to the State Department and the President the task of adjusting relations with Japan, if necessary, by a new treaty or otherwise. Mr. Bryan made four suggestions for possible action on the part of the legislature.

First: To delay immediate action and permit the State Department to frame a new treaty with Japan.

Second: To delay immediate action and appoint a legislative commission to investigate alien ownership and act with President Wilson in gaining relief.

Third: To enact a law similar to the Illinois statute, which allows all aliens to hold land for six years.

Fourth: To enact a law similar to the Federal statute in the District of Columbia, which applies to all aliens.

In presenting these suggestions, Mr. Bryan said: Each State acts in a dual capacity. It is the guardian of the local affairs of its people and in a sense the only guardian, and yet each State is a member of the Union and one of the sisterhood of States. Therefore, in acting upon questions of local conditions, the State always recognizes that it is its duty to share the responsibility with other States in actions affecting the nation's relations with foreign nations."

In place of acting upon the suggestions of Mr. Bryan, the legislature gave its attention to a new bill, which was framed by Attorney-General Webb. The first provision of this bill was as follows: "All aliens eligible to citizenship under the laws of the United States, may acquire, possess, enjoy, transfer, and inherit real property, or any interest therein, in this State in the same nanner and to the same extent as citizens of the United States, except as otherwise provided by the laws of this State." The second provision was as follows: "All aliens other than those mentioned in section 1 may acquire, possess, enjoy and transfer real property, or any interest therein, in the manner and to the extent and for the purpose prescribed by any treaty now existing between the government of the United States and the nation and country of which such alien is a citizen or subject, and not otherwise." It was held by the advocates of this bill that, as it specifically guarded treaty rights and also affirmatively conferred rights on all aliens eligible to citizenship, instead of debarring from existing rights those ineligible, it was free from objection or offense. President Wilson telegraphed to Governor Johnson that in his opinion the Webb bill would involve an appeal to the courts on the question of treaty rights and would bring on what might prove to be a long and delicate litigation. The so-called Webb bill passed both houses of the legislature on May 3, but Governor Johnson had promised President Wilson that a reasonable time should elapse before the bill should be signed by him. This was intended to afford an opportunity for any communications on the subject from the national government. The bill as it passed contained an amendment to Section 2, noted above, which gave the class of aliens specified in that section the specific right to lease lands for agricultural proposes for a term not exceeding three years. After the passage of the Webb bill President Wilson on May 11 sent a request through the Secretary of State that Governor Johnson should withhold his signature in order to give the Federal government an opportunity to take up the question diplomatically with Japan. To this suggestion Governor Johnson made a detailed reply. He declared that it was his duty to sign the bill unless "some absolutely controlling necessity demands contrary action." He outlined at some length the situation as it was regarded by the legislature and himself, and in his opinion, by a great majority of the people of California. This view may be summed up as follows: "We have violated absolutely no treaty rights; we have shown no shadow of discrimination; we have given to no nation the right to be justified in taking offense." Governor Johnson recalled the fact that when California adopted its present Constitution more than thirty years ago, a clause was included declaring the presence of such foreigners a danger to the well-being of the State. He also pointed out, as he had previously done, that other States had enacted laws similar to the Webb bill; that the naturalization laws of the United States determine who are and who are not eligible for citizenship; that California ought not to be accused of invidious discrimination when it follows in this regard the statutes of the United States; and that the immigration bill which passed both houses of the Sixty-second Congress excluded certain classes described as "persons who cannot become eligible under existing laws to become citizens of the United States," and that no protest had been made in or out of Congress on the score of the use of such language. Governor Johnson laid stress upon the fact that existing treaties are made a part of the law; and that not only are all rights to acquire real property which are granted under the treaty carefully observed, but that an additional privilege is given through the amendment permitting aliens not eligible to citizenship to lease agricultural land for a period of three years. The Webb law, he said, affects only the ownership of agricultural land about which absolutely nothing was said in the treaty of 1911. He declared that the bill absolutely maintains the national good feeling of the government and leaves no excuse for a claim on the part of the Japanese that they are in any way deprived of legal or treaty rights. As to the feeling of the Japanese on the basis of the legislation, that there was an intention of offensive discrimination, Governor Johnson declared that the real question is "not whether any offense has been taken, but whether justly it should be taken." He said that there was no ground for offense on the part of any nation, "particularly in the instance of a nation like Japan that in its own laws prevents acquisition of land by aliens." The governor declared that the problem in California is acute, and that agitation has been continuous in regard to agricultural lands, until finally an attempted solution became imperative. He said that he believed such legislation was necessary for the protection and preservation of the State and added "We must see it or be blind."

The basis of the objection to the passage of the alien laws on the part of Japan, was Article 1 of the treaty made in 1911. This article contains the following clause:

"The citizens or subjects of each of the high contracting parties shall have liberty to enter, travel, and reside in the territories of the other; to carry on trade, wholesale and retail; to own or lease and occupy houses, manufactories, warehouses, and shops; to employ agents of their own choice, to lease land for residential and commercial purposes, and generally to do anything incident to or necessary for trade upon the same terms as native citizens or subjects, submitting themselves to the laws and regulations there established."

This treaty of its adoption became, of course, a part of the supreme law of the United States. The United States Constitution explicitly provides that "all treaties made or which shall be made under the authority of the United States shall be the supreme law of the land; and the judges in every State shall be bound thereby, anything in the Constitution or the laws of any State to the contrary notwithstanding." The bill went into effect on August 10. Throughout the remainder of the year notes continued to be exchanged between the American and Japanese governments in relation to the bill, but these were not made public. For a further discussion of the matter see UNITED STATES, section *Foreign Relations*.

Another series of incidents which, from their connections with the Federal government, had a national interest, were connected with the indictment of M. R. Diggs and F. D. Caminetti, under the White Slave act for abduction. Caminetti is the son of the commissioner of immigration. On June 21, John L. McNab, Federal district attorney of San Francisco, resigned, and at the same time made public a long dispatch to the President, in which he asserted that he was forced to hand in his resignation because the attorney-general, against his protest, had ordered a postponement of the trial of Diggs and Caminetti. This trial was to have been held shortly after the date above, but as Caminetti's father wished to be present at the trial, and as his presence in Washington was desired by the Secretary of Labor, the attorney-general at the request of the latter, postponed it until August. After the publication of Mr. McNab's letter, the House committee on the judiciary sent for all papers relating to the case, and several of these were made public. Among them were letters and telegrams in which Mr. McNab earnestly argued against any postponement. Mr. Bryan in his newspaper *The Commoner*, published a strong defense of Attorney-General McReynold's action. The President accepted Mr. McNab's resignation, and appointed another district attorney to succeed him. On the trial of the case, both were convicted.

For an account of the progress of the Panama Exposition, see EXPOSITIONS.

The long continued efforts of the city of San Francisco to obtain the right to use a portion of the Hetch-Hetchy Valley, a part of the Yosemite Valley, for a reservoir to supply water to the city, were brought to successful issue by the final passage of the bill in both houses of Congress permitting such action.

On February 23, the project was favored by a board of engineers composed of members of the corps of engineers of the United States army. This board, in effect, reported that the utilization of the Hetch-Hetchy site would be far less expensive than to obtain the water for the city from any other source suggested. Many persons identified with conservation of public land, including Gifford Pinchot, were also in favor of the project. It was bitterly opposed by several organizations and individuals, including John Muir, the famous naturalist, and Robert Underwood Johnson, who was president of an organization formed especially to oppose the acquisition of the valley by San Francisco. A bill was introduced in Congress on July 23, and this gave the city of San Francisco permission to construct a dam in the Hetch-Hetchy Valley which would form a reservoir for water. This bill was bitterly attacked by Mr. Johnson in the statement issued on August 19. A measure passed the House, and after prolonged hearings, reached the Senate. Here, on account of opposition, action was postponed until Congress should reassemble in December. On December 6, the bill was taken up in the Senate, and after three days of debate was passed and signed by President Wilson.

LEGISLATION. The most important measures enacted were those relating to holding of lands by aliens. This is fully discussed in the previous sections of this article. In addition to this measure the legislature passed a blue-sky law, a State civil service law, a law providing mothers' pensions, a measure providing for the abatement of disorderly houses, the water conservation act, a law providing for a minimum wage commission for women and minors, with authority to fix minimum wages and hours of labor, an eight-hour law for underground workers, a sixteen-hour law for train and enginemen, a measure providing for the extension of the existing women's eight-hour law, a measure providing for the extension of the workmen's compensation act to establish automatic insurance system, an act providing for the appointment of delegates to investigate rural credits in Europe, a measure providing for non-partisan elections in counties, and a measure creating a legislative counsel bureau to advise and assist legislature. See also LIQUOR REGULATION.

STATE GOVERNMENT. Governor, Hiram W. Johnson, Progressive; Lieut.-Governor, A. J. Wallace; Secretary of State, F. C. Jordan; Treasurer, E. D. Roberts; Comptroller, A. B. Nye; Adjutant-General, Edwin A. Forbes, Attorney-General, U. S. Webb; Superintendent of Education, Edward Hyatt; Commissioner of Insurance, E. C. Cooper; Commissioner of Agriculture, R. L. Telfer—all Republicans, except Governor.

JUDICIARY. Supreme Court: Chief Justice, W. H. Beatty; Associate Justices, H. A. Melvin, Lucien Shaw, M. Angellotti, M. C. Sloss, F. W. Henshaw, W. G. Lorigan; Clerk, B. G. Taylor—all Republicans.

STATE LEGISLATURE. Democrats: Senate 12, House 25; joint ballot 37. Republicans: Senate 12; House 8; joint ballot 9. Progressives: Senate 27; House 46; joint ballot 73. Socialist: House 1; joint ballot 26. Progressive majority; Senate 14; House 2; joint ballot 26.

The State representatives in Congress will be found in the article UNITED STATES, section *Congress*.

CALIFORNIA, UNIVERSITY OF. A State institution for higher education, founded at Berkeley, Cal., in 1860. The total enrollment in the university for the collegiate year 1912-13 was 7296, of whom 4094 were academic undergraduates, 648 graduate students, 315 in the colleges of law, medicine, and pharmacy, 191 in the university farm, and 294 in the San Francisco Institute of Art. There were 719 members of the faculty, of whom 460 were in the academic departments. In 1913 Hubert E. VanNorman was appointed dean of the university farm school. There were many other important departments in the faculty of this school. Dr. R. G. Boone was appointed professor of education, and acting director of the School of Education; and C. E. Rugh was appointed a professor of education. The noteworthy benefactions received during the year included an endowment for the George Williams Hooper School of Medical Research, with 5000 acres of redwood timber land, valued at between one and two million dollars. A fund of $600,000 was given for a new teaching hospital for the medical department. The productive endowment fund of June 30, 1913, amounted to $5,022,088. The income for the year ending on the same date was $1,938,987. The library contains about 300,000 volumes and several hundred thousand manuscripts. The president is Benjamin Ide Wheeler, LL.D.

CAMBODIA. A French protectorate; part of the colony of French Indo-China (q.v.), bordering the Gulf of Siam, and extending from Siam and Cochin-China to Annam and lower Laos. The majority of the native population are Khmers. The country is well watered. Rice is the principal cultivated product; legumes, fruits, and industrial plants thrive. A principal source of revenue is the output of the inland lake fisheries; the lakes are fished mostly by Chinese, Annnamese, and Malays. Betel nuts, fresh and dried fish, timber, cacao, cinnamon, cardamoms, cotton, sugar cane, etc. are exported. The trade goes mostly through Saïgon, and is included with that of French Indo-China. The capital, Pnom-penh, is picturesquely situated at the point where the Melsong separates into two branches. The local budget for 1912 balanced as 4,232,416 piasters. Native king, Sisowath. The French resident in 1913 was M. Outrey.

CAMPOS SALLES, MANUEL FERRAS. A former president of Brazil; died June, 1913. He was elected president in 1898. Under his administration the finances of the country were reorganized. In June, 1913, the rival political parties of Brazil had agreed to adopt Dr. Campos Salles as a conciliation candidate for the term 1914-1918, and he had consented to stand.

CANADA, DOMINION OF. A British self-governing dependency, including most of North America north of the United States. The capital is Ottawa, in the province of Ontario.

AREA AND POPULATION. The following table shows by provinces and territories, according to official returns in 1911: (1) Area in square miles (by planimetric calculation), including 125,765 square miles of water, but excluding the territorial seas, the Gulf of St. Lawrence, and the Canadian portion of the Great Lakes; (2) population as returned by the census of 1901; (3) population as returned by the census of June 1, 1911; (4) population increase per cent. between 1901 and 1911:

	Sq. m.	Pop. '01	Pop. '11	Inc.
Alberta	255,285	73,022	374,663	413.1
Brit. Columbia.	355,855	176,657	392,480	119.7
Manitoba	73,732	255,211	455,614	78.5
New Brunswick	27,985	331,120	351,889	6.3
Nova Scotia...	21,428	459,574	492,338	7.1
Ontario	260,862	2,182,947	2,523,274	15.6
Pr. Edward Isl.	2,184	103,259	93,728	*9.2
Quebec	351,873	1,648,898	2,003,232	21.5
Saskatchewan..	251,700	91,279	492,432	439.5
Yukon Ter.....	207,076	27,219	8,512	*68.7
Northw't Ters.	1,921,685	20,129	18,481	*8.2
Canada	3,729,665	5,371,315	7,206,643	34.2

* Decrease.

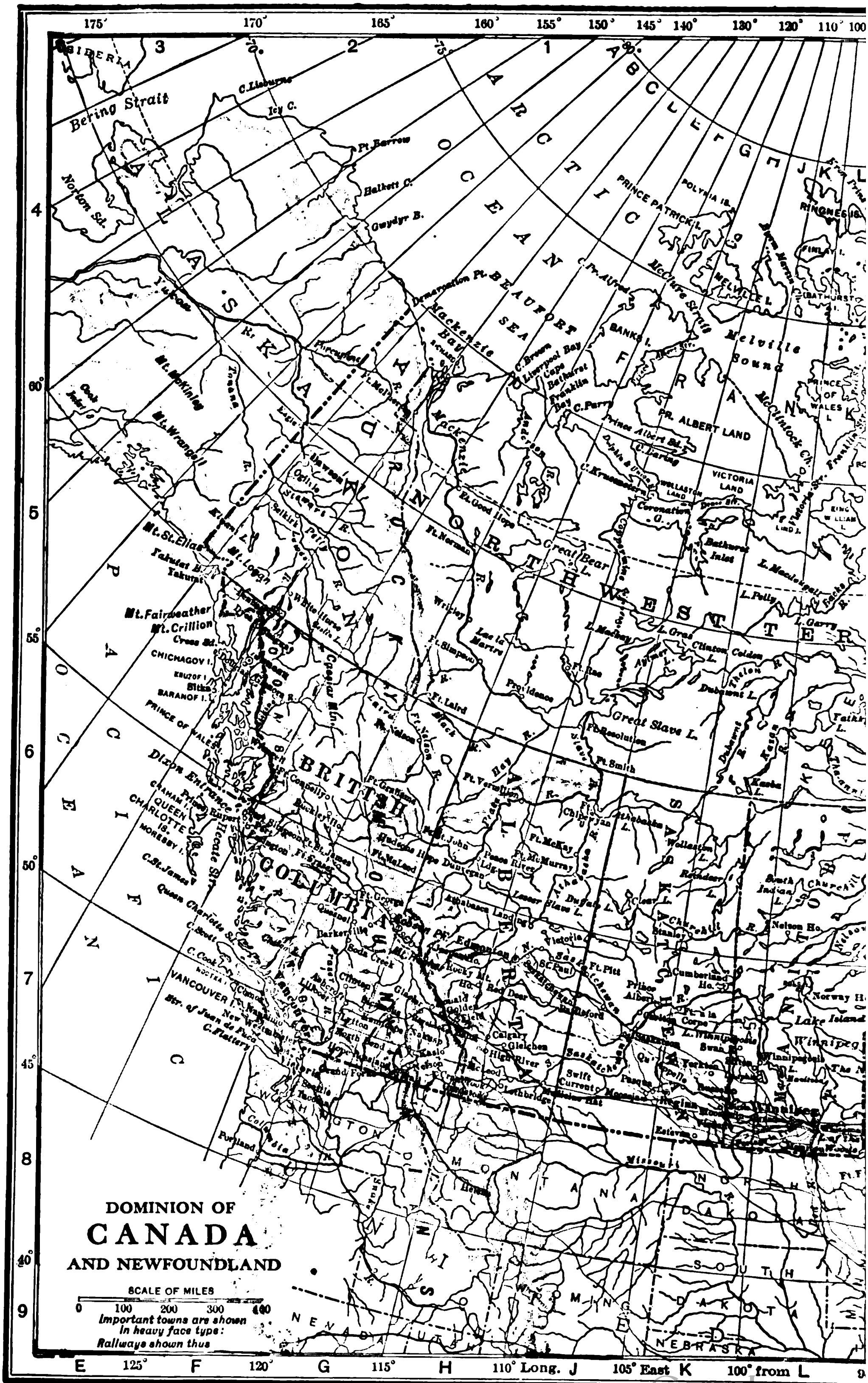
The population as stated in vol. i. of the 1911 census was 7,204,838; as stated in vol. ii., 7,206,643, owing to an increase of 520 in the returns from Quebec and 1805 in those from the Northwest Territories. The population as estimated June 30, 1913, was 7,758,000.

By the boundary extension acts, passed by the Dominion parliament in 1912 (proclaimed May 10 and in force from May 15, 1912), the provinces of Manitoba, Ontario, and Quebec were enlarged by the addition of areas that were previously part of the Northwest Territories. The boundaries of Manitoba were thus extended northwards to the 60th parallel of north latitude between the eastern boundary of Saskatchewan and the western shore of Hudson Bay; and from the point where the boundary of Manitoba and Ontario formerly coincided the boundary of Manitoba was carried due north to a point defined and thence northeasterly to the point where the 89th meridian of west longitude intersects the southern shore of Hudson Bay. The northern boundary of Ontario was extended to the southern shore of Hudson Bay, the new western boundary coinciding with the new eastern boundary of Manitoba. To the province of Quebec was added the whole of the former district of Ungava, so that now Quebec includes all of the peninsula of Labrador which is within Canada (the strip along the eastern shore of Labrador constitutes a dependency of Newfoundland) and is the largest province of the Dominion. The extent of these changes is shown in the following table (increase of area, present area, and population adjusted to the 1911 census):

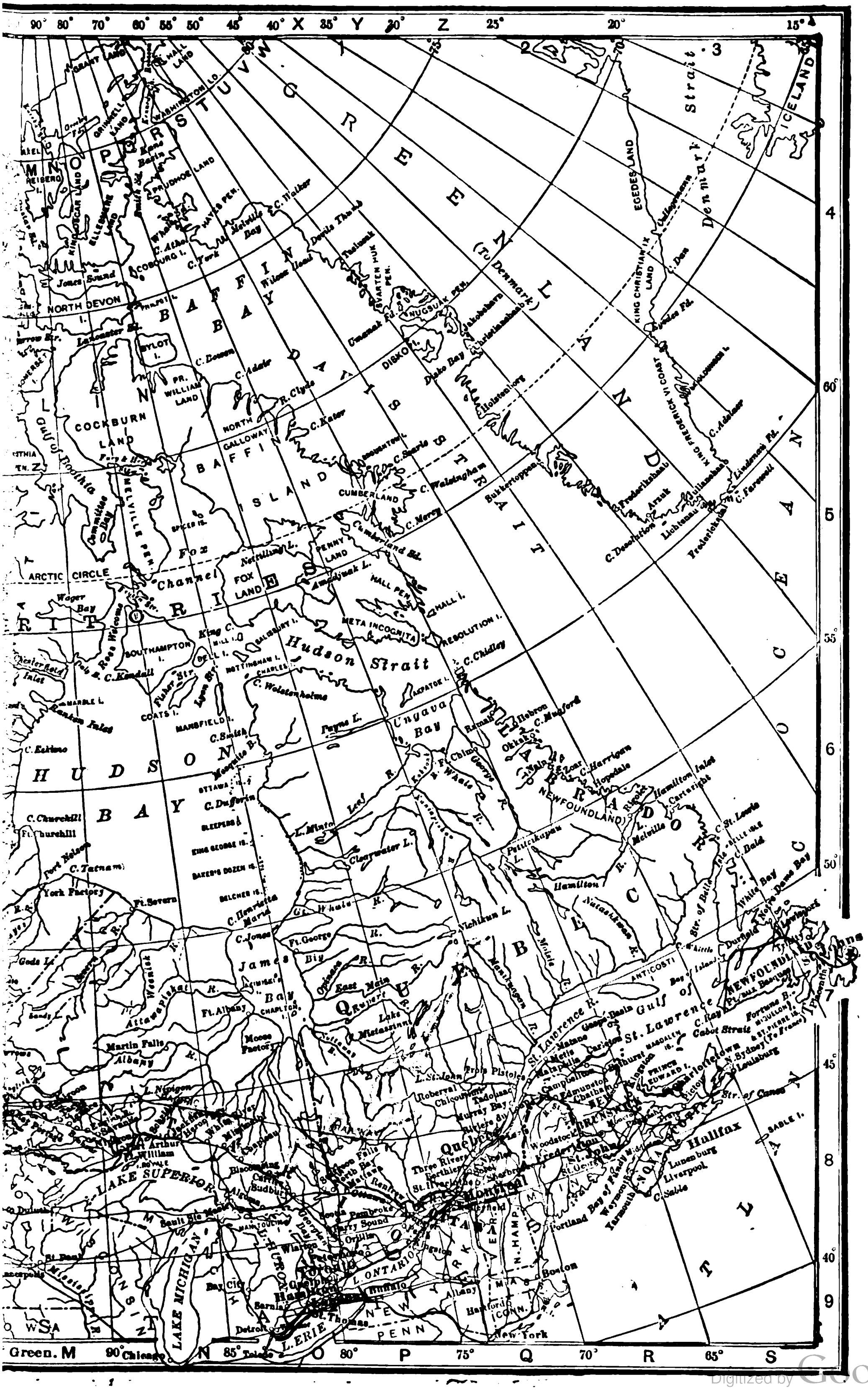
	Inc. sq. m.	Sq. m.	Pop. '11
Manitoba	178,100	251,832	461,630
Ontario	146,400	407,262	2,527,292
Quebec	354,961	706,834	2,005,779
Northwest Ters.......	*679,461	1,242,224	5,900

* Decrease, equal to the increase of the three provinces.

The new district of Ontario has been named Patricia (after the Princess Patricia, younger daughter of the Duke of Connaught, governor-general of Canada). As at present constituted, it is bounded on the west and northwest by Manitoba, on the south and southwest by the English and Albany rivers and on the east and north by James and Hudson bays. Pursuant to an order in council, dated February 20, 1912, and subject to the future enactment by the Dominion parliament of the necessary legislation, Ontario will also possess a strip of territory (now within Manitoba) five miles wide lying between the district of Patricia and the Nelson River and to be located within 50 miles of the Hudson Bay coast, as well as an area half a mile wide and five miles in length to be located along the south shore of the Nelson River. The latter area is to be contiguous to the five-mile strip, and together those areas will afford ten miles of waterfront for harbor facilities and railway terminals.



DOMINION OF
CANADA
AND NEWFOUNDLAND


90°
80°
70°
60°
55°
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45°
40°
X
35°
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Z
25°
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15°
2
3
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6
7
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9
60°
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45°
40°
GREENLAND
GRANT LAND
GRINNELL LAND
HALL LAND
WASHINGTON LD.
Kane Basin
Smith Sd.
PRUDHOE LAND
ELLESMERE LAND
KING OSCAR LAND
C. Walker
HAYES PEN.
Whale Sd.
C. Athol
C. York
Melville Bay
Devil's Thumb
COBOURG I.
Jones Sound
NORTH DEVON
Lancaster Sd.
BYLOT I.
C. Dewen
C. Adair
PR. WILLIAM LAND
COCKBURN LAND
Gulf of Boothia
BAFFIN BAY
DAVIS STRAIT
R. Clyde
NORTH GALLOWAY
C. Kater
BAFFIN ISLAND
CUMBERLAND
C. Searle
C. Walsingham
C. Mercy
Cumberland Sd.
PENNY LAND
Fury & Hecla Str.
Committee Bay
MELVILLE PEN.
SPICER IS.
Fox Channel
ARCTIC CIRCLE
Nettilling L.
FOX LAND
Amadjuak L.
HALL PEN.
HALL I.
META INCOGNITA
RESOLUTION I.
C. Chidley
Hudson Strait
Wager Bay
Roes Welcome
SOUTHAMPTON I.
King C.
MILL I.
SALISBURY I.
NOTTINGHAM I.
CHARLES I.
BELL I.
Fisher Str.
Chesterfield Inlet
C. Kendall
COATS I.
MANSFIELD I.
C. Wolstenholme
MARBLE I.
Rankin Inlet
C. Eskimo
C. Smith
Mosquito B.
Payne L.
Ungava Bay
Ramah
Hebron
C. Mugford
Okkak
Nain
Zoar
C. Harrigan
Hopedale
Ft. Chimo
Whale R.
George R.
Leaf R.
HUDSON BAY
OTTAWA IS.
C. Dufferin
SLEEPERS IS.
KING GEORGE IS.
BAKER'S DOZEN IS.
BELCHER IS.
C. Churchill
Ft. Churchill
Fort Nelson
C. Tatnam
York Factory
Ft. Severn
L. Minto
Clearwater L.
Petitcikapau L.
NEWFOUNDLAND
Rigolet
Hamilton Inlet
Cartwright
Melville L.
C. St. Louis
BELLE ISLE
C. Bald
Hamilton
Natashquan
Str. of Belle Isle
White Bay
Notre Dame Bay
C. Henrietta Maria
Gt. Whale R.
C. Jones
Ft. George
James Bay
Nichikun L.
Manicouagan R.
Moisie
LABRADOR
QUEBEC
Rupert
East Main
Lake Mistassinni
Attawapiskat R.
Ft. Albany
CHARLTON I.
Moose Factory
Martin Falls
Albany
Gods L.
ANTICOSTI I.
Bay of Islands
NEWFOUNDLAND
St. Johns
Trinity
Placentia B.
Fortune B.
MIQUELON IS.
ST. PIERRE IS. (To France)
Gulf of St. Lawrence
St. Lawrence R.
Gaspe Basin
Matane
Metis
Carleton
Bathurst
MAGDALEN IS.
PRINCE EDWARD I.
C. Ray
Cabot Strait
N. Sydney
Louisburg
Str. of Canso
SABLE I.
Halifax
NOVA SCOTIA
Lunenburg
Liverpool
C. Sable
Yarmouth
Bay of Fundy
Weymouth
St. John
Fredericton
Woodstock
NEW BRUNSWICK
Campbellton
Edmundston
Chatham
Charlottetown
Pictou
Trois Pistoles
Tadousac
Chicoutimi
Roberval
L. St. John
Murray Bay
Riviere du Loup
Quebec
Three Rivers
Sherbrooke
Montreal
Ottawa
Pembroke
Renfrew
Kingston
Toronto
Hamilton
Buffalo
Guelph
Sarnia
St. Thomas
Detroit
Toledo
L. ERIE
L. ONTARIO
L. HURON
LAKE MICHIGAN
LAKE SUPERIOR
Sault Ste Marie
MANITOULIN I.
Georgian Bay
Parry Sound
Orillia
Sudbury
Biscotasing
L. Nipigon
Pt. Arthur
Ft. William
Duluth
St. Paul
Minneapolis
Chicago
Bay City
Albany
Hartford
Boston
New York
PENN
NEW YORK
VER.
N. HAMP.
MAINE
MASS.
CONN.
ONTARIO
Portland
U. S. A.
ATLANTIC OCEAN
ICELAND
Denmark Strait
EGEDES LAND
KING CHRISTIAN IX LAND
KING FREDERICK VI COAST
Angmagsalik
C. Dan
Sermilik Fd.
C. Adelaer
Lindenows Fd.
C. Farewell
Frederiksdal
Lichtenau Fd.
Julianehaab
Arsuk
C. Desolation
Frederikshaab
Sukkertoppen
Holsteinborg
Godhavn
Disko Bay
DISKO I.
Jakobshavn
Christianshaab
NUGSUAK PEN.
SVARTEN HUK PEN.
Umanak Fd.
Tasiusak
(To Denmark)
Upernivik
Wilcox Head
Green. M
90°
85°
80°
75°
70°
65°
N
O
P
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R
S

As shown in the first of the preceding tables, the total population on June 1, 1911, was 7,206,643, representing an increase of 1,835,328 over the returns of April 1, 1901. For the period covered, the rate of increase, viz., 34.17 per cent., is the largest in the world and is due to the large increase of immigration beginning with the present century. Other countries for which data is available, in respect of the percentage rates of increase during the same decade, are: New Zealand, 30.5; United States, 21; Germany, 15.2; Netherlands, 14.8; Switzerland, 13.2; Denmark, 12.6; Belgium, 10.9; Austria, 9.3; United Kingdom, 9.1; Hungary, 8.5; Sweden, 7.5; Italy and Norway, 6.8; and France, 1.6.

Immense areas of Canada are not only uninhabited, or practically so, but unfit for habitation; the average density of population, according to the 1911 census, is 1.93 per square mile, calculated upon the total of 3,729,665 square miles. Prince Edward Island has a density of 42.91 per square mile; Nova Scotia, 22.98; New Brunswick, 12.61; Ontario, 9.67; Manitoba, 6.18; Quebec, 5.69 (figures for the latter three provinces are upon the basis of area as before the changes of 1912); Saskatchewan, Alberta, and British Columbia, each less than 2 per square mile.

Figures discriminating rural from urban population show, in the older parts of the Dominion, the trend of population from country to town.

	Pop. 1901		Pop. 1911	
	Rural	Urban	Rural	Urban
Alberta	52,399	20,623	232,726	141,937
Bt. Columbia.	88,478	90,179	188,796	203,684
Manitoba	184,738	70,473	255,249	200,365
New Brunsw'k	253,835	77,285	252,342	99,547
Nova Scotia..	330,191	129,383	306,210	186,128
Pr. Edward Isl.	88,304	14,955	78,758	14,970
Ontario	1,246,969	935,978	1,194,785	1,328,489
Quebec	992,667	656,231	1,032,618	970,614
Saskatchewan.	73,729	17,550	361,067	131,365
Yukon Ter...	18,077	9,142	4,647	3,865
Northw't Ters.	20,129	....	18,481	....
Canada	3,349,516	2,021,799	3,925,679	3,289,964

In 1911 the population comprised 3,821,995 males (53.03 per cent.) and 3,384,648 females (46.97 per cent.); the number of females per 1000 males was 886 (as compared with 952 in 1901), ranging from 308 in Yukon Territory and 560 in British Columbia to 980 in Quebec and 991 in Prince Edward Island. As compared with the Canadian average of 886, that of Ceylon is 888; New Zealand, 896; Australia, 926; Union of South Africa, 941; United States, 943; India, 953; Ireland, 1004; Italy, 1010; Hungary, 1019; Germany, 1026; Austria, 1036; Sweden, 1046; Scotland, 1063; England and Wales, 1068; and Norway, 1069. Conjugal condition of the people in 1911: Single, 2,369,766 males (32.88 per cent.) and 1,941,886 females (26.94); married, 1,331,853 (18.48) and 1,251,468 (17.37); widowed, 89.154 (1.24) and 179,656 (2.49); divorced, 839 and 691; legally separated, 1286 and 1584; not stated, 29,097 and 9363.

Classified in respect of birthplace, the population in 1911 was: Born in Canada, 6,453,911 (77.98 per cent.); British Isles, 784,526 (10.89); British possessions, 29,188 (0.41); British unknown and born at sea, 20,515 (0.28); Europe, 404,941 (5.62); Asia (exclusive of natives of British India), 40,946 (0.57); United States, 303,680 (4.21); all other countries, 3165 (0.4); total, 7,206,643.

The 1911 census showed 482,059 persons who had emigrated from their native provinces; of these, 352,735 had gone from the eastern provinces to the prairie provinces and British Columbia—89,311 to Mantitoba, 16,006 to Saskatchewan, 77,367 to Alberta, and 70,051 to British Columbia.

Classified by principal religious denominations, the population in 1911 was as follows (with percentage of total for 1911 and 1901 respectively): Roman Catholics, 2,833,041 (39.31 and 41.51); Presbyterians, 1,115,324 (15.48 and 15.68); Methodists, 1,079,892 (14.99 and 17.07); Anglicans, 1,043,017 (14.47 and 12.69); Baptists, 382,666 (5.31 and 5.92); Lutherans, 229,864 (3.19 and 1.72); Greek Church, 88,507 (1.23 and 0.29); Jews, 74,564 (1.03 and 0.31); Congregationalists, 34,054 (0.47 and 0.53); Salvation Army, 18,834 (0.26 and 0.19); all others, 4.26 per cent. in 1911 and 4.09 in 1901.

Population of the larger cities according to the census of 1911: Montreal, Que., 470,480; Toronto, capital of Ontario, 376,538; Winnipeg, capital of Manitoba, 136,035; Vancouver, B. C., 100,401; Ottawa, Ont., capital of the Dominion, 87,062; Hamilton, Ont., 81,969; Quebec, capital of Quebec province, 78,710; Halifax, capital of Nova Scotia, 46,619; London, Ont., 46,300; Calgary, Alb., 43,704; St. John, N. B., 42,511; Victoria, capital of British Columbia, 31,660; Regina, capital of Saskatchewan, 30,213; Edmonton, capital of Alberta, 24,900; Brantford, Ont., 23,132; Kingston, Ont., 18,874; Maisonneuve, Que., 18,684; Peterborough, Ont., 18,360; Hull, Que., 18,222. The populations of Charlottetown and Fredericton, capitals of Prince Edward Island and New Brunswick, were 11,198 and 7208 respectively.

The birth rate for the Dominion in the year 1900-01 was 27.82, and the death rate 15.12. In 1911 the birth rate and the death rate by provinces was as follows: Alberta, 23.52 and 9.66; British Columbia, 14.88 and 9.32; New Brunswick (in 1900-01), 25.98 and 11.54; Manitoba, 34.93 and 12.03; Nova Scotia, 25.03 and 16.73; Ontario, 22.68 and 13.61; Prince Edward Island, 15.97 and 11.89; Quebec, 37.18 and 17.92; Saskatchewan, 17.76 and 5.54.

Immigrants arriving at inland and ocean ports in years ended March 31: 1911, 311,084 (of whom 123,013 from the United Kingdom and 121,654 from the United States); 1912, 354,237 (138,121 and 133,853); 1913, 402,432 (150,542 and 139,130). Chinese immigration in 1912, 6247; in 1913, 7445.

Education. The census of June 1, 1911, returned 6,319,160 persons of five years of age and over. Of these, 5,622,844 could read and write (88.98 per cent., as compared with 82.88 per cent. in 1901); 32,863 could read only (0.52 and 2.74); 663,453 could neither read nor write (10.50 and 14.38). The percentage of the population of five years and over who could neither read nor write was as follows in 1911 and in 1901, by provinces: Alberta, 12.72 and 30.56; British Columbia, 11.61 and 24.84; Manitoba, 13.31 and 14.55; New Brunswick, 14.05 and 16.19; Nova Scotia, 10.34 and 14.25; Ontario, 6.51 and 8.75; Prince Edward Island, 7.61 and 10.77; Quebec, 12.66 and 17.71; Saskatchewan, 13.70 and 35.11; Yukon, 13.58 and 35.13; Northwest Territories, 69.25 and 81.78. For Canada the percentages are respectively, 10.50 and 14.38.

Public instruction is controlled by the separate provincial governments. Primary education is free and, except in Quebec and Manitoba, compulsory.

Alberta. For years ended December 31, 1911 and 1912: Common schools, 1392 and 1601; enrollment, 61,660 and 71,044; average attendance, 32,557 and 39,227; amount expended on grounds and buildings, $1,504,853 and $2,041,485; amount expended on teachers' salaries, $1,144,584 and $1,411,201. Total expenditure (including interest) in 1912, $6,667,282. The number of teachers employed during 1912 was 3054; the total number employed at any one time, 2229. Average salary per year paid to all teachers employed, $769.89.

British Columbia. Years ended June 30, 1911 and 1912: Schools, 538 and 576; pupils enrolled, 45,125 and 50,170; average attendance, 32,161.74 and 37,567.88; teachers, 1179 and 1353; expenditure, $2,641,522 and $3,882,488.

Manitoba. For 1910: Enrollment, 76,247; attendance, 43,885; teachers, 2774; expenditure, $4,000,671.

New Brunswick. For terms ended June 30, 1911 and 1912: Schools, 1885 and 1906; enrollment, 63,073 and 63,564; average attendance, 41,597 and 43,230; teachers, 1975 and 2015. Total number of different pupils in attendance during the school year 1910-11, 68,951; 1911-12, 69,199.

Nova Scotia. Years ended July 31, 1911 and 1912: Schools, 2639 and 2662; enrollment, 102,426 and 103,674; average attendance, 60,557 and 64,549; teachers, 2799 and 2804. The foregoing figures include high schools. Pupils in the common school grades in 1911 numbered 94,234 and in 1912, 95,316. The total provincial expenditure for education under all departments was $1,379,332 in 1911 and $1,453,610 in 1912.

Ontario. For the year 1911: Public elementary schools, 5921; enrollment, 400,552; average attendance, 244,674; teachers, 9349; expenditure, $9,006,394. Roman Catholic separate elementary schools, 495; enrollment, 59,396; average attendance, 37,310; teachers, 1193; expenditure, $897,890. Protestant separate elementary schools, 6; enrollment, 424; average attendance, 260. Kindergartens, 194, with an enrollment of 20,677. High schools and collegiate institutes, 148; enrollment, 32,227; average attendance, 20,177; teachers, 898; expenditure, $1,948,058. Continuation schools, 129; enrollment, 5753; average attendance, 3487; teachers, 218; expenditure, $252,080. Total enrollment in elementary and secondary schools, 520,255; average attendance, 313,624. Average cost per pupil (enrolled attendance) in all schools, $23.26; average cost per pupil (average attendance), $38.59.

Prince Edward Island. For 1911 and 1912: Schools, 475 and 474; enrollment, 17,307 and 17,078; average attendance, 10,511 and 10,916; teachers, 591 and 590.

Quebec. For 1912: Elementary schools, 5789 (enrollment, 229,234); model schools, 683 (107,775); academies, 248 (63,027); colleges, 20 (7818); special schools, 91 (9061); normal schools, 11 (836); schools annexed to normal schools, 11 (1418); universities, 3 (3446); total, 6856 (422,615). Male lay teachers numbered 1150; male religious teachers, 2215; female lay teachers, 7461; female religious teachers, 4100; total, 14,926. Aggregate contributions for education in 1910-11, $6,794,333; in 1911-12, $7,414,469.

Saskatchewan. For 1910 and 1911: Schools, 1912 and 2110; enrollment, 63,964 and 70,567; average attendance, 33,731 and 37,701; teachers, 2672 and 3491; expenditure, $3,655,428 and $3,989,036.

AGRICULTURE. In 1911 the estimated total area under field crops was 32,853,074 acres, with a harvest value, according to average local market prices, of $565,711,600; in 1912, 32,449,420 acres, with a harvest value of $511,951,100. The decrease in 1912 is largely accounted for by the severe winter, which destroyed 326,000 acres of winter wheat. The following table shows the area in thousands of acres and the yield in thousands of bushels of principal field crops in 1911 and 1912:

	1000 Acres		1000 Bu.	
	1911	1912	1911	1912
Wheat	10,374	9,758	215,851	199,236
Oats	9,220	9,217	348,188	361,733
Barley	1,404	1,415	40,641	44,014
Rye	148	136	2,694	2,594
Peas	287	251	4,536	3,774
Buckwheat	359	387	8,156	10,193
Mixed grains	560	522	16,679	17,952
Flaxseed	683	1,678	7,867	21,682
Beans	61	60	1,156	1,041
Corn for husking	316	298	18,773	16,570
Potatoes	459	472	66,023	81,343
Turnips, etc.	227	217	84,933	87,505
			1000 Tons	
Hay and clover	7,903	7,634	12,694	11,189
Fodder corn	285	279	2,577	2,859
Sugar beets	21	19	177	204
Alfalfa	102	111	228	310

The area and yield of the wheat, oats, and barley crops in the three Northwest provinces:

	1000 Acres		1000 Bu.	
	1911	1912	1911	1912
Manitoba:				
Wheat	2,980	2,653	60,275	58,899
Oats	1,261	1,269	57,893	53,806
Barley	433	455	14,447	14,965
Saskatchewan:				
Wheat	4,705	4,892	97,665	93,849
Oats	2,124	2,286	97,962	105,115
Barley	172	180	5,445	5,926
Alberta:				
Wheat	1,617	1,417	36,143	30,574
Oats	1,178	1,359	56,964	62,936
Barley	156	175	4,151	5,780
Total:				
Wheat	9,301	8,962	194,083	183,322
Oats	4,563	4,914	212,819	221,857
Barley	762	810	24,043	26,671

Livestock estimates June, 1908, and June, 1912: Horses on farms, 2,118,165 and 2,336,800; milch cows, 2,917,746 and 2,890,100; other cattle, 4,629,836 and 4,093,600; sheep, 2,831,404 and 2,360,600; swine, 3,369,858 and 2,656,400.

HOMESTEADS. Ordinary homestead entries for lands of the Dominion government, preemptions under the Dominion lands act were as follows in 1911 and 1912:

	Homesteads		Preëmptions	
	1911	1912	1911	1912
Manitoba	2,944	3,133	.....	.....
Saskatchewan	20,681	18,425	10,795	5,846
Alberta	14,960	13,668	7,557	3,101
British Columbia	324	312	.....	.....
Total	38,909	35,538	18,352	8,947

Purchased homesteads numbered 1514 for 1911 and 1149 for 1912. Entries for South

African volunteer homesteads, 2064 and 166.

Mining. According to the preliminary official report, the total value of the mineral production of Canada in 1912 was $133,127,489, as compared with $103,220,994 in 1911. The increase amounts to nearly 29 per cent. The largest previous production was in 1910, compared with which that of 1912 shows an increase of over 24 per cent. The *per capita* production increased from $15.44 in 1910 to over $18 in 1912. In the latter year the only new camp of importance to contribute largely to the output was Porcupine, the gold production of which was about one and three-quarter million dollars. To a considerable degree the increase in the value of the 1912 output was due to a substantial advance in the price of most of the metals. The following table shows the quantities (in thousands) and the values (in thousands of dollars) of minerals produced in Canada in 1911 and 1912:

	Quantities		1000 $	
	1911	1912	1911	1912
Copper ....lb.	55,648	77,776	6,887	12,709
Gold ....oz.	473	608	9,781	12,559
Pig iron......ton.	918	1,015	12,307	14,551
Lead ....lb.	23,785	35,763	828	1,598
Nickel ....lb.	34,099	44,841	10,230	13,452
Silver ....oz.	32,559	31,932	17,355	19,426
Other	.....	.....	411	983
Total	.....	.....	57,799	75,278
Less pig iron from imported ores ....ton.	875	978	11,694	14,100
Total metals	.....	.....	46,105	61,178
Asbestos and asbestic ...ton.	127	131	2,943	2,979
Coal ....ton.	11,323	14,700	26,468	36,349
Gypsum .....ton.	518	576	993	1,321
Natural gas....	.....	.....	1,918	2,311
Petroleum ...bbl.	291	243	357	345
Salt ....ton.	92	95	443	460
Cement ......bbl.	5,693	7,121	7,645	9,083
Clay products..	.....	.....	8,360	9,343
Lime ....bu.	7,534	7,992	1,518	1,718
Stone	.....	.....	4,329	4,676
Other	.....	.....	2,143	3,364
Total non-metals ..	.....	.....	57,116	71,950
Grand total..	.....	.....	103,221	133,127

Of the total gold output in 1912, a value of $5,549,296 was produced in the Yukon and $5,205,485 in Ontario; silver, $17,772,352 in Ontario; pig iron, $8,176,089 in Ontario and $6,374,910 in Nova Scotia; of the coal, 7,791,440 tons in Nova Scotia and 3,220,899 tons in British Columbia. Value of the total mineral output by provinces:

	1911		1912	
	1000 $	p. c.	1000 $	p. c.
Alberta	6,663	6.46	12,111	9.10
British Columbia.	21,299	20.63	29,555	22.20
Manitoba	1,792	1.74	2,315	1.74
New Brunswick..	613	0.59	807	0.61
Ontario	15,409	14.93	18,843	14.15
Quebec	9,305	9.01	11,676	8.77
Yukon	4,707	4.56	5,888	4.42
Total	103,221	100.00	133,127	100.00

Fisheries. In the fiscal year 1912 the total catch was valued at $34,667,872, as compared with $29,965,433 in 1911 and $29,629,170 in 1910. The inland fisheries in 1911 and 1912 returned a value of $3,842,837 and $3,824,997, respectively. For these two fiscal years the value by provinces was: Alberta, $82,460 and $102,325; British Columbia, $9,163,235 and $13,677,125; Manitoba, $1,302,779 and $1,113,480; New Brunswick, $4,134,144 and $4,886,157; Nova Scotia, $10,119,243 and $9,367,550; Ontario, $2,026,121 and $2,205,436; Prince Edward Island, $1,153,708 and $1,196,396; Quebec, $1,692,475 and $1,868,136; Saskatchewan, $172,903 and $139,436; Yukon, $118,365 and $111,825; total, $29,965,433 and $34,667,872. The most valuable fish taken in the fiscal years 1911 and 1912: Salmon, $7,205,871 and $10,345,570; lobsters, $3,784,099 and $4,790,203; cod, $5,921,248 and $4,201,760; halibut, $1,251,829 and $2,278,824; herrings, $2,278,842 and $1,973,702; sardines, $539,227 and $1,241,526; haddock, $1,218,759 and $1,316,418; whitefish, $983,594 and $935,450; trout, $825,290 and $818,501; smelts, $797,066 and $780,520; mackerel, $390,182 and $663,280; pickerel, $508,513 and $536,711. The value of the whale oil produced increased from $158,203 in the fiscal year 1911 to $597,454 in 1912. In the fiscal year 1912, there were employed in the fishing industry 91,132 persons, of whom 65,926 were fishermen, who manned 1648 vessels and tugs and 36,761 boats. The capital invested was $20,932,904, as compared with $19,019,870 in 1911.

Manufactures. The following statistics of Canadian manufactures are from the census taken in June, 1911, for the calendar year 1910. The table below shows the chief general results as compared with figures for 1900 (*a* number of establishments, *b* capital, *c* employes on salaries, *d* salaries, *e* employes on wages, *f* wages, *g* raw and partly manufactured materials, *h* products):

	1900	1910	Increase	Inc. p.c.
a ....no.	14,650	19,218	4,568	31.18
b .... $	446,916,487	1,247,583,609	800,667,122	179.15
c ....no.	30,691	44,077	13,386	43.61
d .... $	23,676,146	43,779,715	20,103,569	84.91
e ....no.	308,482	471,126	162,644	52.72
f .... $	89,573,204	197,228,701	107,655,497	120.19
g .... $	266,527,858	601,509,018	334,981,160	125.68
h .... $	481,053,375	1,165,975,639	684,922,264	142.38

Capital (*a*) and value of products (*b*) were as follows in 1900 and 1910, respectively, by provinces: British Columbia, (*a*) $22,901,892 and $123,027,521, (*b*) $19,447,778 and $65,204,236; Manitoba, (*a*) $7,539,691 and $47,941,540, (*b*) $12,927,439 and $53,673,609; New Brunswick, (*a*) $20,741,170 and $36,125,012, (*b*) $20,972,470 and $35,422,302; Nova Scotia, (*a*) $34,586,416 and $79,596,341, (*b*) $23,592,513 and $52,706,184; Ontario, (*a*) $214,972,275 and $595,394,608, (*b*) $241,533,486 and $579,810,225; Quebec, (*a*) $142,403,407 and $326,946,925, (*b*) $158,287,994 and $350,901,656. In the territory included in Alberta and Saskatchewan the capital invested in manufactures in 1900 was $1,689,870, and the value of products $1,964,987. In Alberta in 1910 the capital was $29,518,340, and the value of products $18,788,825; in Saskatchewan, $7,019,951 and $6,332,132. Total Canada, in 1900 and 1910, respectively: Capital, $446,916,487 and $1,247,583,609; value of products, $481,053,375 and $1,165,975,639. Number of establishments in Canada, capital, and value of products in 1910, by groups:

	Estab.	Capital	Products
Food	6,985	$ 133,044,523	$ 245,369,321
Textiles	1,444	108,787,407	135,902,441
Iron and steel...	824	123,561,319	113,640,610

	Estab.	Capital	Products
Timber, lumber & re-mfrs.	4,999	259,889,715	184,630,376
Leather & mfrs.	399	48,788,803	62,850,412
Paper & printing	773	62,677,612	46,458,053
Beverages and liquors	260	43,237,757	28,936,782
Chemicals, etc...	178	26,926,124	27,798,833
Clay, glass, and stone products.	771	45,859,507	25,781,860
Metals and mfrs., exc. steel......	341	67,133,540	73,241,796
Tobacco & mfrs.	173	21,659,935	25,329,323
Land vehicles....	465	49,397,096	69,712,114
Water vehicles...	172	10,351,765	6,575,417
Miscellaneous ...	1,011	235,148,103	104,618,560
Hand trades.....	423	11,120,403	14,829,741
Total	19,218	1,247,583,609	1,165,975,639

Commerce. The following table shows, in dollars, imports of merchandise for home consumption, of total merchandise, of coin and bullion, and total imports, in years ended March 31:

	Mdse. Home Consump.	Total Mdse.	Coin and B.	Total Imports
1908...	351,879,955	364,237,864	6,548,661	370,786,525
1909...	288,217,515	299,768,166	9,988,442	309,756,608
1910...	369,815,427	385,835,103	6,017,589	391,852,692
1911...	451,745,108	462,041,330	10,206,210	472,247,540
1912...	521,448,309	533,286,663	26,033,881	559,320,544
1913...	670,089,066	686,604,413	5,427,979.	692,032,392

For the same years, exports of domestic merchandise, of total merchandise, of coin and bullion, and total exports:

	Domestic Mdse.	Total Mdse.	Coin and B.	Total Exports
1908...	246,960,968	263,368,952	16,637,654	280,006,606
1909...	242,603,584	259,922,366	1,589,793	261,512,159
1910...	279,247,551	298,763,993	2,594,536	301,358,529
1911...	274,316,553	290,000,210	7,196,155	297,196,365
1912...	290,223,857	307,716,151	7,601,099	315,317,250
1913...	355,754,600	377,068,355	16,163,702	393,232,057

In the fiscal year 1910 total imports and total exports showed an increase as compared with the preceding year of 26.50 and 15.24 per cent. respectively; in 1911, 20.51 and —1.04; in 1912, 18.44 and 6.09; in 1913, 23.73 and 24.71. In the fiscal year 1910, dutiable imports amounted to $241,961,556, free imports $143,873,547, and import duties collected $61,024,239; in 1911, $291,818,801, $170,222.529, and $73,312,362, respectively; in 1912, $343,370,082, $189,916,581, and $87,576,037; in 1913, $456,086,187, $230,518,226, and $115,063,688.

Principal imports for consumption by classes, in thousands of dollars, in the fiscal years 1911 and 1912, respectively: Metals, minerals, and their manufactures, 123,777 and 171,463; coal, coke, etc., 41,338 and 42,953; cotton and manufactures, 30,983 and 37,952; wool and manufactures, 26,677 and 33,650; wood and manufactures, 20,679 and 28,515; carriages, automobiles, etc., 11,754 and 20,802; sugar, molasses, etc., 18,152 and 20,591; oils, 9228 and 17,205; chemicals, dyes, drugs, etc., 12,596 and 16,511; fruits, 15,314 and 16,452; settlers' effects, 15,145 and 15,934; hides and skins other than fur, 8904 and 13,486; provisions, 7368 and 12,027; breadstuffs, 13,483 and 11,633; rubber, gutta-percha, and manufactures, 8103 and 11,058; leather and manufactures, 6387 and 9602; silk and manufactures, 7431 and 9171; electric apparatus, 5994 and 9105; paper and manufactures, 6352 and 8347; furs and manufactures, 5759 and 7983; tobacco, 5701 and 7283; tea. 6707 and 6844; spirits and wines, 5604 and 6746; books, etc., 5327 and 6511; hats, caps, etc., 4452 and 6035; glass and manufactures, 4100 and 5370. Included above in metals, minerals, and manufactures are: Iron and steel, 96,179 and 138,648; copper, 5193 and 7549; tin, 5420 and 7242; brass, 3539 and 5288.

The following table shows by great classes domestic exports and total exports in the years ended March 31, 1912 and 1913 (*a* produce of mine; *b* produce of fisheries; *c* produce of forest; *d* animals and their produce; *e* agricultural products; *f* manufactures; *g* miscellaneous articles; *h* total merchandise; *i* coin and bullion; *j* grand total):

	Domestic Exports		Total Exports	
	1912	1913	1912	1913
a	$41,324,516	$57,442,516	$41,510,582	$57,583,030
b	16,704,678	16,336,721	16,815,192	16,442,822
c	40,892,674	43,255,060	41,104,887	43,679,623
d	48,210,654	44,784,593	49,220,897	45,773,227
e	107,143,375	150,145,661	115,454,486	158,955,695
f	35,836,284	43,692,708	42,508,985	52,525,082
g	111,676	97,311	1,101,122	2,108,876
h	290,223,857	355,754,600	307,716,151	377,068,355
i	....	....	7,601,099	16,163,702
j	290,223,857	355,754,600	315,317,250	383,232,057

The leading export from Canada is grain. The table below shows for fiscal years domestic exports of wheat, oats, barley, and all grain in thousands of bushels (*a*) and thousands of dollars (*b*), and of wheat flour in thousands of barrels (*a*) and thousands of dollars (*b*):

	Wheat	Oats	Barley	All Grain	Wheat Flour
1908—a.......	43,655	7,123	....	53,949	1,963
b.......	40,005	3,172	....	45,563	8,455
1909—a.......	49,137	5,256	....	59,205	1,738
b.......	48,148	2,176	....	53,782	7,991
1910—a.......	49,741	3,402	2,045	56,866	3,064
b.......	52,609	1,567	1,108	56,751	14,860
1911—a.......	45,802	5,432	1,545	53,841	3,049
b.......	45,521	2,149	831	49,536	13,855
1912—a.......	64,466	8,881	2,062	76,001	3,739
b.......	62,591	3,820	1,324	68,428	16,034
1913—a.......	93,166	10,479	6,456	110.571	4,478
b.......	88,609	5,068	3,852	97,941	19.971

Other important domestic exports in the fiscal years 1912 and 1913, in thousands of dollars: Planks and boards, 19,340 and 20,839; deals, 6013 and 5514; wood blocks for pulp, 5698 and 6806; square timber, 1268 and 1363; shingles, 1481 and 1409; silver, 15,908 and 20,203; gold, 7193 and 11,227; copper, 5646 and 9912; coal, 4338 and 5555; asbestos, 1495 and 2056; dry salted codfish, 4136 and 4302; canned salmon, 3830 and 3484; canned lobsters, 3081 and 3049; hides and skins other than fur, 5114 and 7276; furs, 3842 and 5166; bacon and hams, 7920 and 5674; cheese, 20,889 and 20,697 (the greatest export of cheese was in 1903, $24,712,943); hay, 6374 and 3950; agricultural implements, 5699 and 6153; wood pulp, 5094 and 5509; fresh apples, 5104 and 4048.

For years ended March 31, the following table shows by principal countries total imports and total exports, in thousands of dollars:

	Imports		Exports	
	1912	1913	1912	1913
United States...	368,145	455,828	120,535	167,110
United King....	117,192	139,670	151,853	177,982
France	11,886	15,532	2,124	2,565
Germany	11,147	14,474	3,815	3,402
Br. W. Indies..	5,546	6,059	4,034	3,961
British India....	2,837	4,672	157	227
Switzerland	3,507	4,412	20	15
Argentina	3,008	4,168	2,976	2,264
Belgium	3,683	4,096	3,732	4,809
Du. E. Indies...	1,372	3,855	7	12
British Guiana..	5,005	3,384	584	630
Netherlands	2,443	3,220	1,783	2,742
Mexico	1,010	3,143	495	218

	Imports		Exports	
	1912	1913	1913	1913
Japan	2,902	3,139	488	1,140
New Zealand...	1,324	3,067	1,341	1,698
Cuba	1,771	2,746	2,097	1,527
Newfoundland...	1,842	2,058	4,284	4,728
Dominican Rep.	1,015	1,872	29	53
Italy	1,200	1,836	285	606
Australia	426	439	3,947	3,996
Br. So. Africa..	142	268	2,418	3,341
Total, inc. other	559,321	692,032	315,317	393,232

For fiscal years, total imports and total exports, by provinces, in thousands of dollars:

	Imports		Exports	
	1912	1913	1912	1913
Alberta	13,879	21,079	53	162
Br. Columbia...	49,345	66,596	20,273	27,087
Manitoba	44,224	58,898	3,303	5,259
New Brunswick.	11,954	14,446	28,980	34,634
Nova Scotia....	19,285	20,753	23,569	24,201
Ontario	240,262	301,651	108,555	132,757
Pr. Edward Isl..	703	976	583	573
Quebec	164,349	187,301	123,105	147,724
Saskatchewan...	14,267	19,011	4,622	17,154
Yukon Ter......	953	1,231	2,275	3,680
British prepaid postal parcels.	100	89	......	......
Canada	559,321	692,032	315,317	393,232

Shipping. Shipping entered and cleared at the ports has been as follows in fiscal years (exclusive of the coasting trade):

	Entered		Cleared	
	Vessels	Tons	Vessels	Tons
		Sea-going		
1902........	15,339	7,603,084	14,967	7,128,454
1903........	14,278	8,050,516	14,054	7,790,659
1908........	15,087	10,189,275	14,717	9,301,996
1912........	16,642	12,768,191	16,224	11,821,414
1913........	18,087	13,575,193	17,579	12,655,905
		On Inland Waters		
1902........	23,585	7,595,741	23,822	7,698,175
1903........	30,819	9,107,386	30,575	8,706,482
1908........	22,322	9,712,052	23,486	10,371,708
1912........	23,235	14,496,915	24,013	13,886,607
1913........	30,814	16,147,103	30,754	15,471,582

In the fiscal year 1913, vessels entered with cargo: British, 2504, of 6,300,433 tons register; Canadian, 3150, of 1,536,787 tons; foreign, 4067, of 2,441,991 tons; total, 9721, of 10,279,211 tons;—in ballast: British, 1431 vessels, of 1,433,461 tons register; Canadian, 2520, of 543,509; foreign, 4415, of 1,319,982; total, 8366, of 8,295,982 tons; total with cargo and in ballast, 18,087 vessels, of 13,575,193 tons register.

Communications. The total length of single-track railway in operation in Canada on June 30, 1912, was 26,727 miles. The total mileage increased from 7194 in 1880 to 13,151 in 1890, 17,657 in 1900, 20,487 in 1905, 24,731 in 1910, 25,400 in 1911, and 26,727 in 1912. In June of the latter year there were in addition 1622 miles in actual operation, but officially regarded as still under construction. Canadian railways have been built largely under different forms of government aid, as land grants, cash subsidies, loans, the issue of debentures, and the guarantee of bonds or interest. Aid has been granted both by the Dominion and provincial governments and by municipalities. The total area of lands granted as subsidies to steam railway companies by the Dominion and provincial governments up to June 30, 1912, was 56,052,055 acres. The Dominion government owns and operates the Prince Edward Island Railway and the Intercolonial Railway, which extends from ocean ports in Nova Scotia and New Brunswick to Montreal. The capital of these two lines on June 30, 1912, was $103,434,184, and the aid paid to other lines by the Dominion government up to that date was $154,075,235 (in addition, the aid granted by provincial governments amounted to $35,945,515 and by municipalities to $18,051,324). Also the Dominion government has undertaken the construction of the eastern portion (1805 miles) of the new National Transcontinental Railway from Moncton, N. B., to Winnipeg, Man.; the expenditure on this line up to March 31, 1912, was $116,533,769.

The western section (1755 miles), from Winnipeg to Prince Rupert, B. C., is under construction by the Grand Trunk Pacific Railway Company. Several branches are in operation and others under construction. Early in 1913 there remained about 450 miles to complete the main line of the National Transcontinental. The following figures relating to Canadian railways are for the fiscal years 1911 and 1912, respectively: Miles in operation, 25,400 and 26,727; gross earnings, $188,733,494 and $219,403,753; working expenses, $131,034,785 and $150,726,540; net earnings, $57,698,709 and $68,677,213. Capital liability in 1912, $1,588,937,526 (stocks $770,459,351, funded debt $818,478,175). Mileage in operation by provinces in 1912: Ontario, 8546; Quebec, 3882; Saskatchewan, 3754; Manitoba, 3520; Alberta, 1897; British Columbia, 1855; New Brunswick, 1545; Nova Scotia, 1357; Prince Edward Island, 269; Yukon Territory, 102; total, 26,727.

The construction programme for the three private lines—the Canadian Pacific, the Grand Trunk Pacific, and the Canadian Northern Railways—for the year amounted to some 2700 miles. The Canadian Pacific had under way extensive double-tracking and a new and shorter line through the Selkirk range of mountains in British Columbia, which involved a five-mile tunnel. On the Grand Trunk Pacific the gap remaining between the main line, which had reached on December 20, a point 1225 miles beyond Winnepeg, and the construction advancing easterly from Prince Rupert on the Pacific, had amounted to less than 125 miles. At the end of 1913 the rail head was approaching Prince George. Trains were operating 360 miles east of Prince Rupert. Operating equipment was being collected and it was expected that May 1, 1914, would witness the driving of the last spike. Of new branches, mostly in the province of Saskatchewan, 100 miles had been opened. The Canadian Northern Railway, which depended on the completion of the Mount Royal Tunnel, which was holed through during the year (see Tunnels), to reach Montreal, was making progress. In the west end the rail head had advanced beyond Anderson Creek, British Columbia, while Sudbury and Port Arthur line was nearing completion at the end of the year. The Alberta Central was building a line from Red Deer to Rocky Mountain House. The National Transcontinental Railway from Moncton to Winnipeg, which, with the Grand Trunk Pacific, will give a complete Transcontinental route from the terminal on the Atlantic to Prince Rupert on the Pacific, had, at the end of the year, but a few short gaps remaining. One of these was the crossing of the St. Lawrence River by the reconstruction of the Quebec Bridge, which, as discussed elsewhere (see Bridges), was in progress.

Railway development in British Columbia was also progressing during the year and in Nova Scotia a contract was awarded for the construction of the Halifax Terminal Railway, a costly development, as it involved, in addition, piers to accommodate thirty ocean steamers.

The total mileage of electric railways computed as single track was 1725 on June 30, 1912.

The telegraph systems include lines owned and operated by the government and by chartered companies (including railway companies). The government service on March 31, 1912, had 8639 miles of line, with 624 offices. The chartered companies, June 30, 1912, had 34,841 miles of line, with 182,541 miles of wire, and 3122 offices. Post offices in 1911, 13,324; in 1912, 13,859.

FINANCE. The Canadian system of public finance includes a consolidated fund to which are credited the revenues and out of which are paid the expenditures properly relating to the fiscal year. There are in addition miscellaneous accounts dealing with loans, debt redemption, railway administration, capital expenditure on public works, and various other subjects. For fiscal years ended March 31 (except 1902, which ended June 30), the expenditure and the revenue of the Dominion government are shown in the table below, in dollars. The several items are indicated as follows: *a* expenditure chargeable to consolidated fund; *b* expenditure chargeable to capital; *c* railway subsidies; *d* other charges; *e* total disbursements; *f* revenue on account of consolidated fund; *g* other revenues; *h* total revenue; *i* difference between receipts and expenditures; *j* sinking funds; *k* net difference between receipts and expenditures, that is, net excess of expenditure (except in 1912, when there was a net excess of receipts).

	1902	1908	1911	1912
a	$50,759,392	$76,641,452	$87,774,198	$98,161,441
b	10,078,638	30,429,907	30,852,964	30,939,576
c	2,093,939	2,037,629	1,284,892	859,400
d	1,038,831	3,469,692	2,949,197	7,181,665
e	63,970,800	112,578,680	122,861,250	137,142,082
f	58,050,790	96,054,506	117,780,410	136,108,217
g	1,543	911	103,918	....
h	58,052,333	96,055,417	117,884,328	136,108,217
i	5,918,467	16,523,263	4,976,922	1,033,865
j	2,569,381	2,234,263	1,203,416	1,156,456
k	*3,349,086	*14,289,000	*3,773,506	†122,569

* Net excess of expenditure. † Net excess of receipts.

Receipts and expenditures on consolidated fund account have been as follows for fiscal years (figures for 1913 subject to revision):

	Receipts		
	1911	1912	1913
Customs	$72,965,394	$85,051,872	$123,554,913
Excise	16,869,837	19,261,662	21,447,445
Post office.....	9,146,952	10,492,394	12,051,729
Railways	10,818,834	11,034,166	12,442,203
Miscellaneous..	7,979,391	10,268,123	9,193,613
Total	117,780,410	136,108,217	168,689,903
	Expenditure		
Debt charges..	$12,910,698	$12,706,853	$13,089,495
Sinking funds.	1,203,416	1,156,456	1,384,285
Prov. subsidies	9,092,472	10,281,045	13,211,800
Civil govt.....	4,463,095	4,774,678	5,109,459
Public works..	8,621,431	10,344,487	13,468,505
Defense	6,868,651	7,580,600	9,114,533
Rev. collection	24,951,636	28,256,780	33,006,201
Other	19,662,798	23,060,541	23,675,259
Total	87,774,198	98,161,441	112,059,537
Surplus	30,006,211	37,946,777	56,630,366

The expenditure chargeable to capital account in the fiscal year 1913 is reported at $32,396,816, and railway subsidies $4,935,507. The following figures relate to March 31, 1912 and 1913: Total liabilities of the Dominion government, $508,338,592 and $483,232,560; total assets, $168,419,131 and $168,930,934; net debt, $339,919,461 and $314,301,626. The net debt increased from $237,533,212 in 1890 to $265,493,807 in 1900, $336,268,546 in 1910, and $340,042,052 in 1911.

NAVY. After the establishment of the Naval Service Department in 1910, it was proposed to proceed with the construction of four vessels of the improved *Bristol* class and six torpedo-boat destroyers of the improved *River* class. Tenders for construction were received in May, 1911, but were not acted upon up to the change of government after the general election of September 21, 1911. Subsequently these arrangements were abandoned, and on December 5, 1912, the prime minister, Mr. R. L. Borden, introduced in the Parliament a bill appropriating a sum not exceeding $35,000,000 for the immediate construction and equipment in the United Kingdom of three battleships or armored cruisers of the most modern and powerful type. The bill, debated in April and May, 1913, failed of enactment. The only existing ships of fighting value are the first-class cruiser *Niobe* (11,000 tons) and the second-class cruiser *Rainbow* (3000 tons). There are 24 small vessels, eight of which fulfill fishing protection duties, three are used on the Great Lakes, two are ice-breakers, four are detailed for lighthouse duty, and the remainder are used in the revenue and surveying services.

ARMY. Every citizen of Canada between the ages of 18 and 60 is liable to military service under the provisions of the Canadian militia act of 1904, but up to 1913 there was no necessity for compulsion, and the system of cadet and volunteer training flourished so that compulsory service was quite unnecessary. The permanent force was the chief means of instruction. Progress was being made with the general scheme of reorganization determined on in the preceding years, and at the end of the year, 1913, the established strength of the Canadian active militia for 1913 was reported as follows: Officers, 5609; non-commissioned officers and men, 68,815; making a total of 74,424, with 17,703 horses. On December 31, 1913, the strength of the permanent corps was: Officers, 238; non-commissioned officers and men, 2783; making a total of 3021.

GOVERNMENT. The executive authority is exercised in the name of the king of Great Britain and Ireland by an appointed governor-general acting through a privy council, or responsible ministry. The Parliament consists of the Senate (87 members nominated for life by the governor-general) and the House of Commons. Members of the House of Commons are elected by popular vote and hold office for five years unless the Parliament is sooner dissolved. The members of the Commons number 221, which will be increased to 231 under the reapportionment necessitated by the 1911 census. Representation by provinces: Alberta, 4 senators and 12 commoners; British Columbia, 3 and 11; Manitoba, 4 and 15; New Brunswick, 10 and 11; Nova Scotia, 10 and 16; Ontario, 24 and 82; Prince Edward Island, 4 and 3; Quebec, 24 and 65; Saskatchewan, 4 and 15; Yukon (ter.) one commoner; total, 87 and 231. The governor-general in 1913 was Prince Arthur, Duke of Connaught and Strathearn (brother of Edward VII.), who assumed office October 13, 1911. The Liberal ministry of Sir Wilfrid Laurier was succeeded October 10, 1911, by a Conservative ministry under the premiership of Robert Laird Borden. It was composed in 1913 as follows: Prime minister, R. L. Borden; minister of trade and commerce, George Eulas Foster; interior, Dr. William James Roche (from October 29, 1912); public works, Robert Rogers (from October 29, 1912); railways and canals, Francis Cochrane; finance, William Thomas White; postmaster-general, Louis Philippe Pelletier; minister of marine and fisheries and of the naval service, John Douglas Hazen; justice, Charles Joseph Doherty; militia and defense, Col. Samuel Hughes; secretary of state, Louis Coderre (from October 29, 1912), also minister of mines (from February 10, 1913); minister of labor, Thomas Wilson Crothers; internal revenue, Wilfrid Bruno Nantel; customs, John Dowsley Reid; agriculture, Martin Burrell; ministers without portfolio. George Halsey Perley, Albert Edward Kemp, and James Alexander Lougheed; solicitor-general (not in the cabinet), Arthur Meighen (from June 26, 1913). Leader of the opposition in the Commons, Sir Wilfrid Laurier.

Each of the provinces has an elected legislature and an executive (lieutenant-governor) appointed by the governor-general acting through a responsible ministry. See also articles on the provinces separately.

HISTORY

Naval Proposals. The naval proposals submitted to the House of Commons late in 1912 by Mr. Borden called for the construction of three super-dreadnoughts in British shipyards at a cost of $35,000,000, to be paid by the Dominion. The ships would be placed under the control of the British Admiralty, but might be recalled if Canada should wish to form a separate naval unit. The "loan" of three dreadnoughts was contemplated by the ministry as a matter of expediency rather than of permanent policy. Mr. Borden explicitly stated, "It must be borne in mind that we are *not* undertaking or beginning a system of regular and periodical contributions. I agree with the resolution of this house in 1909 that the payment of such contributions would not be the most satisfactory solution of the question of defense. But upon the information which I have disclosed to the house, the situation is, in my opinion, sufficiently grave to demand immediate action." The minister of finance, Mr. White, even went further to say, "I am entirely against a policy of regular and periodical contributions and no one has ever proposed or advocated such a policy." Mr. Borden summed up his contention, "I say in the first place that it is not a policy of contributions at all. I say in the second place that it is not a permanent policy." In spite of the ministerial attempt to represent the bill as a matter of the moment, it was regarded by the Liberals as a matter of moment, and the whole imperial and naval policy was brought into discussion. On the one hand, Mr. Borden insisted on the imperial idea, "If we are to remain an empire we cannot have five foreign policies and five separate navies." He seemed to believe the empire in grave danger and the necessity for defense most pressing. The Dominion of Canada, after enjoying without expense the protection of the British navy for many years, was morally bound to assist in the defense of the empire. Defense could be best promoted by means of the well-established and efficient British navy, rather than by the inefficient and inharmonious efforts of the Dominion. As far as foreign policy was concerned, the colonies must be at one with the mother-country; harmony and unanimity would be secured, for the present, at least, by the assistance of a Canadian minister at the deliberations of the imperial committee of defense. As a concession to the shipping interests, smaller vessels were to be built in Canada, but Canadian shipyards were at present unfited for the construction of super-dreadnoughts. On the other hand, Sir Wilfrid Laurier voiced the sentiments of the Liberal opposition. He denied that the integrity of the empire depended on naval unity, "The Crown is a purely sentimental bond, but that bond, though purely sentimental, has proven itself stronger than armies and navies." Naval contribution—even the temporary condition advocated by Mr. Borden—was denounced as "tribute" by the Liberals; subserviency in naval matters would destroy Canadian autonomy, would drag the Dominion into every purely European war of the United Kingdom, and reëstablish the domination of the Dominion by "Downing Street." "If we pass this bill," Sir Wilfrid warned the Parliament, "we will certainly interrupt and perhaps put an end to the spirit of self-confidence and self-reliance which has made Canada what it is to-day." The Liberals did not wish Canada to shirk her obvious duty: they were willing to spend even more than was proposed and to construct 2 dreadnoughts, 6 light cruisers, 12 destroyers, and 6 submarines, to be divided between an Atlantic and a Pacific unit, but to be constructed in Canada, manned by Canadians, maintained by the Dominion treasury, and directed by the Dominion government. "If the young nations of the empire take hold of the equipment and manning of ships to look after the distant seas, concentration can easily take place in the waters of Europe, and the British Admiralty knows what zones she has to defend. This is the Australian policy, this would be the Canadian policy," and in the opinion of the Liberal leader, "this *ought* to be the Canadian policy."

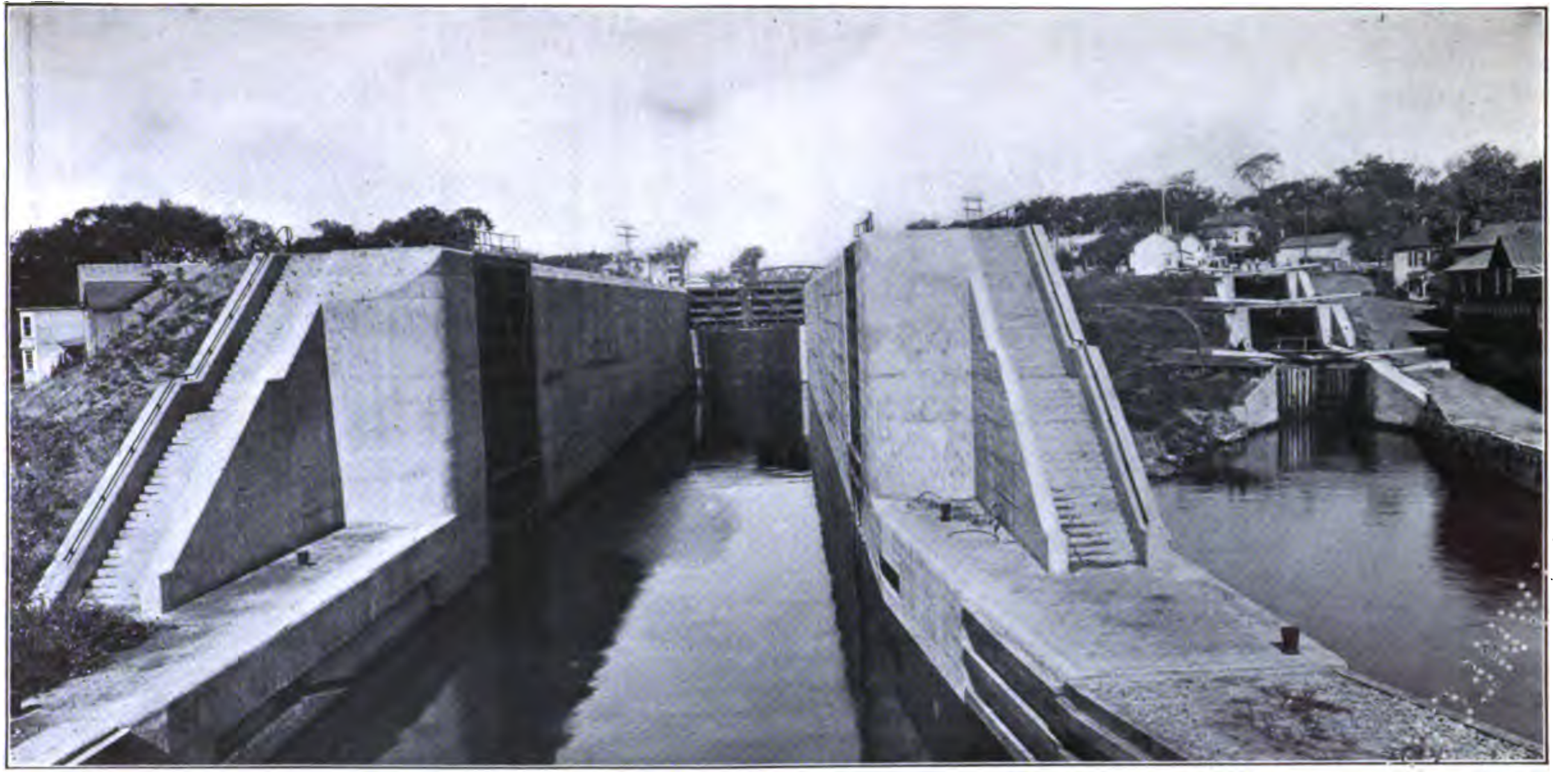
The Contest in Parliament. A majority in the lower house were in favor of Mr. Borden's bill, yet for weeks the measure was held up by the minority. The Liberal leaders adopted obstructionist tactics in the committee of the whole, they delivered endless and unnecessary speeches, and under the rules of the house there were no means of closing the discussion. There were at least three ways of dealing with the deadlock: The question of naval policy might be decided by a popular referendum; or the bill might be made an issue in a general election; or the Conservative majority might use the closure to force the bill through. The last was chosen. The Liberals hoped to obstruct the closure resolution introduced by Mr. Borden on April 9, but when Sir Wilfrid Laurier got up to offer an amendment to the government's closure resolution, Mr. Hazen, minister of marine, was given the floor on a Conservative motion, the "previous question" was moved by him and carried; obstruction was thus ruled out, and the closure was adopted. The closure resolution—or amendment to the house rules—provided that after a measure has been amply discussed, a minister may, on giving 24 hours' notice, introduce a motion to close the debate. If the motion is adopted, members are limited to one speech of 20 minutes, and if at 2 o'clock in the morning succeeding the debate is not concluded, the question shall then be put. Under the new rules, it was possible for the majority to carry the naval bill against the will of the opposition, and on May 15 the House passed the third reading of the naval aid bill by a majority of 38.

The naval aid bill was then referred to the Senate. Just what attitude the Senate would take was uncertain. The Liberals, it will be remembered, possessed a majority of 27 in the Senate. This Liberal majority, however, could not be expected to condemn the bill as resolutely as had the opposition in the Commons; for should the Senate absolutely reject a measure passed by a strong government majority in the lower house, the Commons, it was feared, would ask the imperial Parliament for such amendments to the British North American act as would permit a reorganization of the Senate. The Liberal majority in the Senate was therefore afraid of being reorganized out of existence, yet unwilling to desert Sir Wilfrid Laurier. Sir George Ross, the Liberal leader of the Senate, seemed inclined to compromise, but could not abandon the Liberal position; he rejected the "emergency" excuse, and suggested the appropriation of just enough to carry on the construction from year to year. The government was unyielding, however, and on May 30 the Liberal majority by a vote of 51 to 27 adopted Sir George Ross's amendment that "This House is not justified in giving the consent to this bill until it is submitted to the judgment of the country." It was exactly the same answer as had been given by the Conservative Senate to the Laurier naval proposals some years past. Six days later the federal Parliament was prorogued, but before prorogation Sir Wilfrid Laurier again attacked the government and desired to know what answer would be made to the action of the Senate. Mr. Borden replied that, "Technically, this measure (the naval aid bill) has been rejected by the Parliament of Canada, although, in reality, it has been defeated by a few partisans in the Senate who do not represent in any sense whatever the true desire and wish of the Canadian people." The British government, he went on to say, would probably construct the three ships at its own expense, and if he remained in power he would later obtain authorization from Parliament to pay for the ships. The optimism of the premier was based on his expectation of controlling both houses by 1915. Under the constitutional provision that, in event of a deadlock between the two houses, the ministry may ask the imperial government for leave to appoint six senators, Mr. Borden would have an opportunity to appoint six Conservative senators in addition to those he may appoint on the death of present senators. Moreover, there was a good deal of talk about redistribution and equal representation. If this should be given effect, nine new seats would probably be assigned to the West. If these new seats were filled by Conservatives, in addition to the six just mentioned, the Conservative minority would be increased to 47 out of a total 102; and as soon as 3 Liberals died, the Conservatives would have a majority. Or, should the government not wish to await that event, there was always the possibility of establishing an elective Senate.

The Banking Bill. The regular decennial revision of the banking act and renewal of bank charters, which should have taken place in 1910 had not the Parliament been then overcrowded with work, was taken up by Mr. White, the minister of finance. Frequent demands for closer governmental control of the banking system have been frequent in Canada, and the critics of the present system are able to point to the failure of the Ontario Bank and of the Sovereign Bank, and the mismanagement of the Farmers' Bank. No radical change in the system was incorporated in Mr. White's banking bill, however. The regulations against malpractices were to be made more stringent, the precautions against fraudulent organization were to be increased, more detailed returns and a compulsory annual shareholders' audit were to be required. As a slight step towards the solution of the rural credit problem, banks were authorized to grant loans on farm stock and stored grain as legal security. The banks were also empowered to issue notes, dollar for dollar, on a deposit of gold or of Dominion notes in a central gold reserve under the supervision of a board of trustees.

The Schools Question. During a tour through Canada Mr. Herbert Samuel, British postmaster-general, commented on what seemed to him the inadequacy of the school system in Manitoba. Mr. Samuel's remarks were resented in Canada and stirred up a considerable controversy. Sir Redmond Roblin caused quite a sensation by declaring that the remarks of Mr. Samuel were not only based on misinformation, but were grossly impolitic and entirely unwarranted. The dispute was utilized by the Liberals of Manitoba for another attack on the separate (Catholic) schools. It had seemed as if a compromise might be effected on the question of schools in Manitoba —it was proposed to lease private Catholic schools to the board of education with the proviso that although the schools should be under public supervision, no change should be made in their religious status. The anticlerical authorities, however, would listen to no proposal that allowed the continuance of Catholic schools and instruction by members of the clergy.

In Ontario a considerable but uncertain concession was made to the French. The regulations of a year ago had provided that the French language could not be used as medium of instruction for pupils above the first grade; according to the new circular issued by the department of public instruction, teachers may use French with more advanced pupils who cannot understand English. Moreover, the French language and literature may be studied more than one hour a day. Both of these privileges, however, depend in individual cases upon the consent of the inspector-general.



THE NEW YORK STATE BARGE CANAL

LOCK No. 2 AT WATERFORD, THE EASTERN TERMINUS OF THE ERIE CANAL. This is the first of a series of high lift locks located within about a mile and a half, with a combined total lift of 169 feet, the greatest flight of high lift locks in the world. Three locks of the older canal may be seen on the right.

THE TARIFF DEBATE. The lowering of the United States tariff revived the question of reciprocity. The Liberal press demanded the abandonment of duties on food and the establishment of a wide reciprocity in natural products between Canada and the United States. The true commercial interests of Canada, it was asserted, lay in the New World, not in the British Empire. During the year 1912-13 trade with the United States had increased by $140,000,000, as compared with a $40,000,000 increase in trade with the United Kingdom. The most powerful consideration was the increased cost of living. Taking advantage of the new tariff arrangements, Canadian farmers and cattle-raisers in the West were selling a large proportion of their grain and beef to American buyers, thereby lessening the supply and increasing the price of food in eastern Canada. The only remedy, said the Liberals, was in the reduction of the Canadian tariff. The tariff campaign was pushed with vigor by Sir Wilfrid Laurier in the fall. In a speech at Hamilton on November 26 he pointed out that according to the statistics of the British board of trade, the cost of living had increased 7 per cent. in Great Britain in the last decade and in Canada 51 per cent.; and although Canada produced yearly ten times more wheat than she consumed, the price of flour in Canada was higher than in Great Britain. The tariff was to blame. Again, in a speech in Montreal on December 9, Sir Wilfrid lamented the prevalence of unemployment. "For the first time since 1896 there is such a thing as unemployment in this country. The mayor of Winnipeg said yesterday, according to press reports, that there were 3000 unemployed in the city of Winnipeg. He also said that three years ago he would have blessed Heaven that there was not a single unemployed person in the city. To-day, as we know, in Montreal, in Toronto, in all the large cities of Canada, men are seeking employment and not finding it." Here again the tariff was to blame. Reciprocity would not only provide the idle with cheap food, it would give them employment by stimulating Canadian industries. On these lines Sir Wilfrid Laurier and his old finance minister, Mr. Fielding, proposed to attack the Borden government in Parliament when the new session should open in 1914.

MISCELLANEOUS. In December the leaders of organized labor in Canada inaugurated a movement to secure representation in Parliament. Labor candidates will contest the next general election in some of the large cities, and if elected will pursue a policy akin to that of the British labor party. During his visit to Canada, the British lord chancellor, Viscount Haldane, delivered an important address before the Association of the American Bar at Montreal. On New Year's day, 1913, was celebrated the completion of the Transcontinental Railway, by which wheat may be shipped direct from Saskatchewan to Port Colborne. Among the many minor projects for promoting imperial solidarity may be mentioned the conclusion of a customs-reciprocity agreement with the British West Indies, the invitation to Australia to adopt a similar arrangement, and numerous schemes for the improvement of cable, postal, and commercial facilities between the British Isles, the British West Indies, and Canada. For the treatment of immigrants from India, see INDIA. For a discussion of the Vancouver coal strike, see BRITISH COLUMBIA.

CANADIAN CONSERVATION COMMISSION. See AGRICULTURE.

CANADIAN NORTHERN RAILWAY. See CANADA.

CANADIAN PACIFIC RAILWAY. See CANADA.

CANAL TOLLS, PANAMA. See PANAMA CANAL.

CANALS. In comparison with the completion of the Panama Canal there is danger of unduly belittling other important and cognate undertakings under way or under discussion at home and abroad. A system of coastal waterways along the Atlantic was somewhat advanced by government approval in the United States, while the New York State barge canal, notwithstanding its political bearings and associations (see NEW YORK under *History*), was nearly completed (as was also the Cape Cod Canal). A project for a new Welland canal was put forth and the canalization of the St. Lawrence River was being undertaken. These and other projects will be outlined in the following paragraphs.

The system of intra-coastal canals proposed for the Atlantic seaboard was discussed during the year by Brigadier-general Bixby, chief of engineers, United States army, in a recommendation made to Congress. This scheme involved the construction of inter-connecting canals so that Cape Cod Bay, Long Island Sound, New York Bay, Delaware River and the long reaches of Chesapeake Bay, Albermarle Sound, and Pamlico Sound, which afford several hundred miles of deep and protected waterway, could be connected by a canal system giving a continuous and protected interior route which not only would have distinct commercial advantages, but possess a certain strategic importance in that it was safe from attack by the ships of a hostile navy.

In 1912 Congress appropriated $800,000 for a beginning in the construction of the part of the intra-coastal waterway system, between Norfolk and Beaufort, of which $500,000 was to be expended for the purchase of the Albermarle and Chesapeake Canal, and the remainder was to go towards active construction. The chief of engineers recommended that Congress appropriate $30,000,000 for the construction of a 12-foot canal between New York and Norfolk, and that the 12-foot canal from Norfolk to Beaufort, already authorized by Congress and under construction, be prosecuted vigorously.

NEW YORK STATE BARGE CANAL. By the end of 1913 the barge canal system was reaching a point where its completion might be predicted within two years and such problems as the type of barges and methods of transportation as well as the development of terminal facilities and various questions dealing with modes of transportation and economy were being discussed seriously.

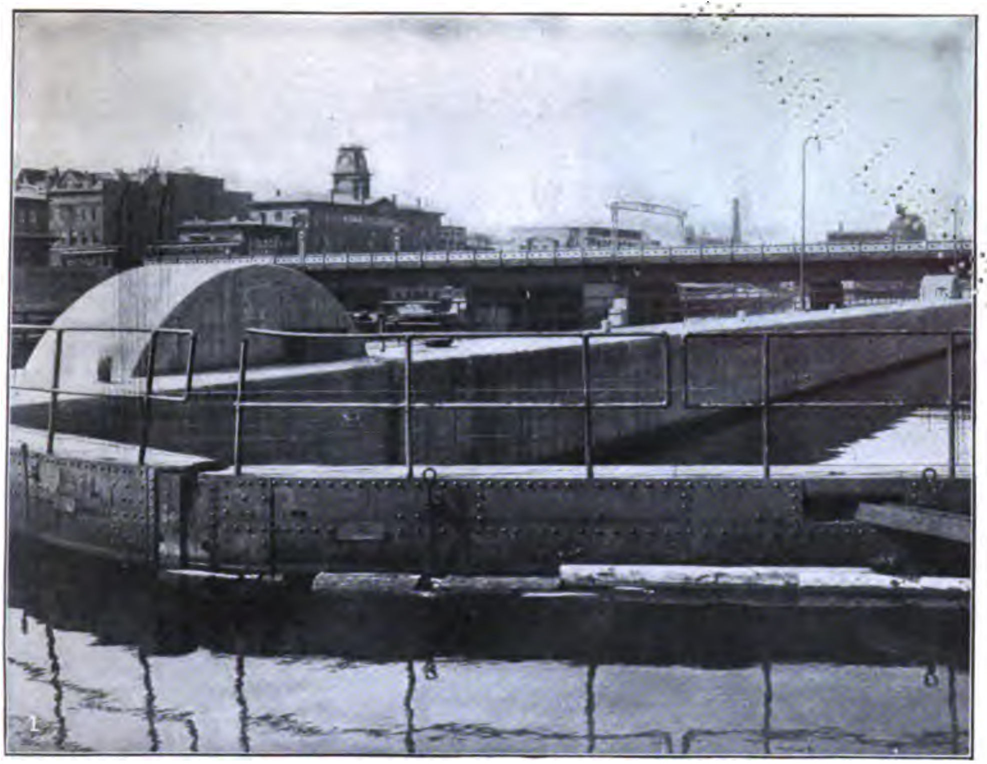
The State engineer and surveyor of the State of New York, in his report for the year 1913, stated that at the close of the fiscal year ended September 30, the amount of work placed under contract as authorized by chapter 147, laws of 1903, providing for the improvement of the Erie, Oswego, and Champlain canals, was $78,076,969, of which there had been performed work to the amount of $60,983,052, and that, at the same time, there was, under contract, work, authorized by chapter 391, laws of 1909, providing for the improvement of the Cayuga and Seneca Canal, amounting to $3,780,328, of which there had been completed work to the amount of $1,815,310; in other words, the improvement of the New York Canal to barge canal dimensions had been placed under contract to the amount of $82,000,000, and of this about $63,000,000 had been completed, or 75 per cent. of the work. The total length of the work authorized for improvement by the statutes mentioned approximates 500 miles, and on September 30, 1913, approximately 250 miles had been completed to barge canal dimensions. Most of the principal structures, such as dams and storage reservoirs and locks, were either completed or nearing completion. It was stated at the end of the year that with the next season of navigation the Champlain Barge Canal would be opened for more than one-half of its total length, or from Whitehead southerly to North Cumberland. The Barge Canal work, both completed and in progress, was able to resist the floods of the spring of 1913 with but little damage, and that, for the most part, to the earth embankments of the Champlain Canal, which, it was thought, would require some modifications in order to accommodate future floods of like or similar proportions.

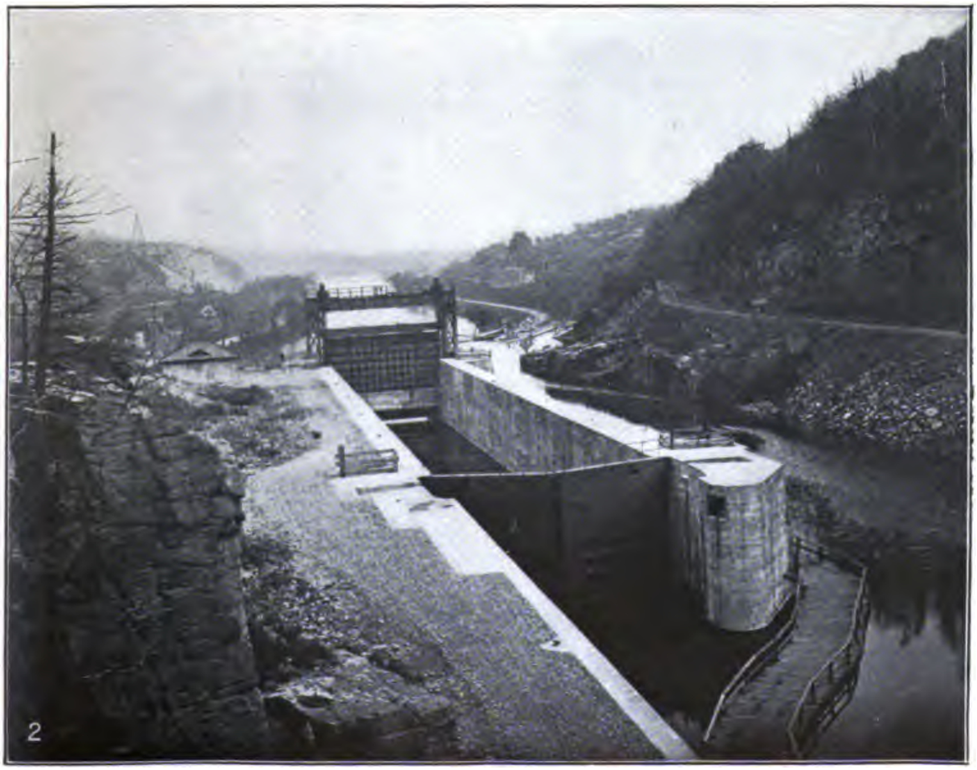
The State engineer in his report discussed the estimated cost of the canal in comparison with the estimates of 1903, which were $77,572,906, to which should be added $5,616,088, resulting from changes in the original plan, making a total of $83,188,994. In 1913 the estimated cost of construction of the Barge Canal was placed at $86,173,464, and the State engineer estimated that the actual increase over the original estimates due to unforeseen conditions, erroneous estimates, etc., would be in the neighborhood of $7,000,000. Not only were there contracts in effect for the construction of the canal itself, but for nine Barge Canal terminals; preliminary surveys had been made at a number of points.

Lock at Keokuk Dam. In connection with the Keokuk Dam and water power installation on the Mississippi River at Keokuk, Iowa, there was involved the submersion of the old canal eight miles in length, having its lower end and lock at Keokuk, and which enabled vessels to pass the Des Moines Rapids. In the old canal there were three locks 225 by 78½ feet each, with a depth of 6 feet on the sills and a lift of 8 feet. In connection with the power project the United States government required that a proper lock for navigation should be provided, as well as shop facilities for the equipment of the United States Engineer Corps. The new lock is 400 feet in length between the gates and 110 feet in width, with a depth of 52,135 feet from the top of the wall to the floor. There is 8 feet 14 inches of water over the sill at the upper gates and at the lower gates the corresponding depth is 7 feet and 27.35 feet at low water, respectively, making a lift of about 20 feet at high water and 35 feet at low water, with a maximum lift of 40 feet when low water below the dam occurs with high water above it. The capacity of the lock, when full, is about 2,200,000 cubic feet. The lock was constructed by enclosing the area to be occupied with a crib cofferdam and then pumping preliminary to excavating the enclosed space. No concrete floor was required as the dam was in solid rock, but the side walls were made of monolithic masses of concrete 608 feet in length with a base width of 33 feet and a height of nearly 60 feet above the foundation. There is a dry bottom with a chamber 430 feet long and 140 feet wide on the floor, and a depth of 19 feet below the top of the wall, and a ship repair plant for the use of the engineer corps in its river work. The hydraulic machinery and gates of the lock and dock present many features of interest, as well as the power plant itself.

Welland Ship Canal. During the year a substantial start was made with the new Welland Ship Canal connecting Lakes Erie and Ontario, and which was estimated to cost some $50,000,000. The new canal follows generally the same line as the old canal from Port Colborne on Lake Erie to Allanburg, but from that point Lake Ontario will be reached by an entirely new route. The new waterway was to afford a canal capable of taking boats of as much as 800 feet in length as compared with those of 360 feet for the older canal, which, during the construction, will not be disturbed. In the new Welland Canal, as planned, there will be a small cut off about three miles from Lake Erie, but otherwise the line of the present canal will be followed, and from Welland to the point where the old canal leaves the Welland River the new canal will follow the bed of that stream. From the Welland River to Allanburg the route of the old canal will be followed, but thence to Lake Ontario there will be an entirely new and better alignment. From lake to lake the length of the new canal will be 25 miles, and to overcome the difference in level at low water between the two lakes, 325½ feet, seven lift locks, each with a lift of 46½ feet, will be constructed. The locks are to be 800 feet in usable length by 80 feet in width in the clear, with 30 feet of water over the sills. The canal will be 200 feet wide at the bottom and the excavation project will be 25 feet, but capable of deepening to 30 feet, and all permanent structures will be constructed on that basis so that future deepening can be provided by merely dredging out the reaches. During the year the contract for section 1 covering the Lake Ontario entrance and lock No. 1 was let at an aggregate price of $3,500,000. The contract for section 3, amounting to $10,000,000 was also awarded and it was expected that the work would be prosecuted vigorously as the appropriations were available.

Cape Cod Canal. On December 31, 1913, the canal across Cape Cod from Massachusetts Bay to Buzzard's Bay was about 90 per cent. completed, 13,250 cubic yards having been excavated and 2,800,000 cubic yards remaining, and it was expected that it might be opened for minor craft in the following July, and at its full depth of 25 feet at low water some time during the autumn. On August 1, 1913, the engineers reported that there remained but 4,500,000 cubic yards to excavate and that excavation was proceeding at the rate of 400,000 cubic yards per month. The dredges at work, two of which were the largest in the world, were removing material at the rate of over 4000 cubic yards per day each. The four-mile approach in the navigable waters of the United





THE NEW YORK STATE BARGE CANAL

1. **SIPHON LOCK AT OSWEGO.** The First Siphon Lock to be built in the United States, and the only lock of this type on the Barge Canal.

2. **HIGH LIFT LOCK AT LITTLE FALLS.** A Lock with a lift of 40½ feet, with a lift type lower gate. The only instance of a lift gate on any Barge Canal lock except the guard locks at the Genesee River crossing.

STANFORD LIBRARY

States in Buzzard's Bay was completed and the massive granite breakwater at the eastern end was finished.

The Cape Cod Canal is eight miles in length, with a depth of 30 feet at high water and a minimum width at the bottom of 100 feet. It is interesting to compare these dimensions, which are greater than those of the original Suez Canal, or the present Manchester Canal in England. There are three passing points where the bottom is 200 feet wide. At the eastern end, the width is 300 feet for nearly a mile and the approach in Buzzard's Bay is 250 feet. The only curve in the channel has a radius of 7640 feet, and otherwise the route is perfectly straight and will be brilliantly lighted, so that ships can go through the canal by night as well as by day. A saving of 70 miles to and from Boston will be effected for vessels as far south as Charleston, and the average delay per round trip per annum of nearly four days for barges and schooners taking the Vineyard route will be eliminated. This Cape Cod Canal can accommodate all craft up to 23 feet depth, which means the entire coasting fleet, with the exception of six vessels. The new waterway had involved the expenditure of about $12,000,000.

St. Lawrence River Improvement. An important development of the year was the St. Lawrence ship canal between Montreal and Quebec. At the close of the season of navigation on the St. Lawrence River in 1912 the ship canal between Quebec and Montreal, a distance of 220 miles, had been half completed at a total cost of $15,000,000. This had involved the construction of a 30-foot channel for 60.60 miles between Montreal and Cap a la Roche, and the deepening of the Beaujeu and St. Thomas channels below Quebec to a depth of 30 feet at low tide. The plan involves the construction of a 35-foot channel and during the year considerable of this has been excavated. The completed channel had a minimum width of 450 feet in the straight portions, and from 500 to 800 feet on the curves, so that there was little difficulty in the navigation of the river.

France. The improvement of the internal waterway system of France continued and new proposals were agitated during the year, one of which involved the expenditure of $90,000,000 to improve the entire system. The success of this was considered very doubtful in view of the financial condition of the republic. An important improvement was in progress on the Canal du Nord, which shortens the distance from Dunkirk to Paris by 26 miles, and avoids 24 locks by doing away with the detour through St. Quentin. This new canal had a length of 60 miles, a bottom width of 33 feet, and a depth of 5 feet, and its estimated cost was about $12,000,000. Its completion was expected in 1917. See Docks and Harbors.

Kaiser Wilhelm Canal. The most important project in Europe during 1913 was the practical completion of the new enlarged Kaiser Wilhelm Canal, which connects the German naval ports of the North Sea with those on the Baltic, and eliminates the passage around Denmark. This work had progressed to a point where the opening in April, 1914, in the presence of the Kaiser, could be announced, which was a year earlier than was expected. The enlargement of the Kiel Canal was rendered necessary by the growth of modern warships. The bottom width was increased from 40 feet to 140 feet, the surface being 330 feet; the depth to 36 feet; the curves reduced to a minimum radius of 5800 feet; while the passing places were increased from seven to eleven. This widening involved the construction of new double locks at both ends, the dimensions of which are 1140 feet in length by 148 feet, with a depth of 46 feet, so that the greatest dreadnought whose construction is contemplated, could be passed through the canal readily. The canal was six years in course of construction, and the cost was $55,000,000.

CANARY ISLANDS. A group of islands off the northwest coast of Africa; a province of Spain. Area, 2808 square miles; *de facto* population (census of December 31, 1910), 444,016 (Gran Canaria 162,601, Palma 45,782, Teneriffe 180,327). Santa Cruz de Tenerife, the capital, had 63,004 inhabitants (communal population); Las Palmas, 62,886.

CANCER. The latest proposal in 1913 in the way of a test for the early recognition of cancer was that of Abderhalden. This test was based on the observation that when foreign proteins enter the blood, the body reacts by manufacturing a ferment which causes their disintegration. The method is simple: A small portion of cancerous tissue is put into a dialyzing-sack and covered with the serum withdrawn from the individual suspected of having cancer. The sack is then immersed in a 2 per cent. solution of sodium fluoride and the whole kept at temperature of 71.6° F. for thirty-six hours. At the end of this period the fluid outside of the dialyzer is tested for the products of protein digestion. If peptones are found the test is regarded as positive and the patient is considered to have cancer. As to practical results of this test, Erpicum tried the serum of forty-two patients with tumors, the nature of which was determined later, after operation. Two of these tumors proved to be cancer, and gave positive results.

Following the reports of experiments with solutions of the heavy metals in the cure of mouse cancer, noted in the Year Book for 1912, a solution of colloidal copper was used in human cancer by Loeb in this country with, according to his report, very encouraging results. Other clinicians, however, failed to obtain any real therapeutic effects. Richard Weil, of New York, summarizes the experience of surgeons at the General Memorial Hospital in New York as follows: The preparation described by Loeb as colloidal copper has been administered in twelve cases of malignant disease, in eight of which the treatment was thoroughly carried out. The treatment resulted, in most of the cases, in the production of mild constitutional disturbances, such as fever, chills, nausea; some loss in weight, a slight reduction of hemoglobin and occasional albuminuria or hemoglobinuria. Chemical analysis of two tumors removed from treated patients failed to reveal the presence of copper, while in a liver obtained at necropsy it was present in appreciable quantity. Judged by certain clinical criteria, which have been adopted as a reliable standard of therapeutic effectiveness the treatment has not appeared to exert a destructive action on the tumor tissue in any of the cases. Since the colloidal salts were stated to have a special affinity for cancer tissue, it is significant that *post mortem* examination of tumors treated with this agent did did not reveal the presence of copper.

The American Society for the Control of Cancer, consisting of both laymen and physicians, was organized, with George C. Clark of New York, as president; Thomas M. Debevoise of New York secretary; Dr. Clement Cleveland of New York, chairman of the executive committee. With the belief that the control of cancer was simply a problem of education, the activities of the society were to be directed toward teaching the public the facts concerning this disease, to urge early recognition and prompt treatment according to the accepted standards of the day, and to discourage the publication in the lay press of misleading and untruthful articles concerning new and untried cures.

That cancer was increasing seemed to be a well founded belief. The statement that cancer has increased in recent years is perhaps a commonplace, but the extent of the increase is not generally realized. Under existing conditions one in seven women and one in eleven men die of cancer. In a pamphlet just issued by the Society for the Prevention and Relief of Cancer, there was given a number of instructive statistics. In the decade 1851-1860 the annual average of deaths from cancer in England and Wales was 6020. From 1881-1890 the average was 16,192; from 1901-1910, 30,914. This appalling rise in mortality had been continuous during the sixty years, and it was still going on. Allowing for increase of population, the deaths from cancer were now 5.9 per cent. of the total mortality from all causes. In 1851 the percentage was 1.4. During the thirty years, 1880-1910, the cancer death-rate for the United Kingdom had exactly doubled. Cancer was overtaking consumption as a cause of death. Fifty-five years earlier, for every hundred deaths from consumption there were sixteen from cancer; at the time the report was prepared the percentage was six times as great. Other statistics showed a constantly increasing proportion of deaths from cancer, the mortality in 1910 being five thousand more than in 1907. The increase with advancing age is marked. The increase in the mortality per ten thousand is as follows: 1907, 6.57; 1908, 6.60; 1910, 7.04; and 1911, 7.28. The proportion among men rose from 6.03 in 1907 to 6.64 in 1911, and among women from 6.57 to 7.28. Among the unmarried in 1911 there were only 1.09 deaths from cancer per ten thousand living, while among the married the figure was 12.29; among the divorced, 24.09, and among the widowed, 41.79.

The relation of nutrition to transmissible tumors in animals was the subject of some interesting studies by Sweet, Corson-White, and Saxon, who based their experiments on those of Osborne and Mendel, who showed that it is possible to control and limit the growth of animals by appropriate diet. The latter were able by special diet to maintain young rats for long periods without any increase in size, the animals remaining otherwise healthy. Sweet and his colleagues inoculated stunted rats and normally fed rats with transplantable tumors, with surprising results. The number of successful transplantations was remarkably reduced by a stunting diet, and the rate of growth of the tumors successfully inoculated was much slower than in animals nourished with ordinary food. Furthermore, such tumors were more apt to undergo retrogression on a stunting diet. The experimental demonstrations clearly indicate the possibility of influencing transplantable tumors by selective diet. See AUTOSEROTHERAPY; RADIUM.

CAPE COD CANAL. See CANALS.

CAPE COLONY. See CAPE OF GOOD HOPE PROVINCE.

CAPE OF GOOD HOPE PROVINCE. One of the four original provinces of the Union of South Africa (q.v.). Europeans constitute (census of 1911) 22.71 per cent. of the total population (2,564,965); colored races, 77.29. About one-fourth of the population is urban. Females number 104 to every 100 males. Average density of population per square mile, 9.26. British subjects by birth formed 98.97 per cent.; 2,479,700 were born in Africa. Dutch church adherents, 479,825; Anglican, 282,619; Presbyterians, 74,005; Congregationalists, 147,378; Methodists, 304,444; Lutherans, 77,860; Baptists, 13,704; Roman Catholics, 35,934; other Christians, 21,919; Jews, 16,744; Mohammedans, 24,189; other sects, 3113; no religion, 1,077,998; unknown, 3564; other, 1669. A total of 1,830,320 (Europeans, 130,299) could neither read nor write; of whom 888,856 (67,646) were males and 941,464 (62,653) were females. Those who could read only, numbered 39,323 (Europeans, 8050)—19,738 (4249) males and 19,585 (3801) females. The agricultural population numbered 524,228 males (72,802 Europeans) and 485,246 females (38,373). Cape Town (the capital) had (1911) 68,738 inhabitants (161,579 with suburbs); Port Elizabeth, 30,949; Kimberley, 29,525. The administrator in 1913 was Sir N. F. de Waal.

COMMUNICATIONS. The Saldanha Bay Line was opened in March and a few months later the George-Oudtshorn, an important main line connection from between the east and west, which shortened the railway distance from Cape Town to Port Elizabeth from 839 miles to 637. The Butterworth-Indutwa line was opened in July, while three lines, amounting in all to 105 miles, were being built. See SOUTH AFRICA, UNION OF, for area, population, history, etc.

CAPE VERDE ISLANDS. A group of islands off the west African coast, belonging to Portugal. Total area, 1516 square miles; population (1910), 142,552 (4718 white, 87,249 colored, 50,585 negroes). Praia is the capital and a leading port; Porto Grande has the better harbor. Imports (1909), 1,909,634 milreis; exports, 235,894 milreis.

CARBOHYDRATES. See CHEMISTRY.

CAR CONSTRUCTION. See RAILWAYS.

CARDEN, SIR LIONEL. See MEXICO, *History*.

CARINTHIA. See AUSTRIA-HUNGARY.

CARNEGIE, ANDREW. See GIFTS AND BEQUESTS.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE. See ARBITRATION, INTERNATIONAL.

CARNEGIE FOUNDATION. See UNIVERSITIES AND COLLEGES.

CARNEGIE INSTITUTE OF TECHNOLOGY. An institution for technical education founded in Pittsburgh in 1909 by Andrew Carnegie. Previous to 1912 it was known as the Carnegie Technical School. The enrollment for 1912-13 was 2798 students from 39 States, and 13 foreign countries. The officers of instruction and administration number 184. The institute consists of four separate schools, each with its own faculty, buildings, and student body. These are the School of Applied Science, the School of Applied Design, the School of Applied Industries, and the Margaret Morrison School for Women. The four schools offer night courses in practically the same subjects as are given in the day courses. The endowment for the institution amounts to about $7,000,000. Mr. Carnegie gave to provide for the buildings, $4,000,000. The income from all sources for the year ending March 31, 1913, was $462,250. The students at the institute have the privilege of using the Carnegie Library of Pittsburgh. The director is A. A. Hammerschlag.

CARNEGIE INSTITUTION OF WASHINGTON. A summary is given below of the important work carried on in 1913 in the different departments of research into which the work of this institution is divided. All the departments of research of the institution are now well-defined organizations, each of them independent of and more or less isolated from the others, and each of them devoted to a field which, while in some cases related to, does not encroach upon, the field of others.

Department of Botanical Research. Studies of the Salton Sea which have been carried on for several years by this department, were brought together during the year in a volume under the title of *The Salton Sea.* Among other researches carried on by the director of the department, mention may be made of his cultivation of the second and third generations of mutants. Dr. Cannon, a member of the departmental staff, carried on studies of root systems of desert plants and of the problem of treelessness in prairie regions. Dr. Forrest Shreve gave special attention during the year to the factors involved in the transpiration of rain-forest plants and to the effects of mountain slopes and climatic conditions varying with altitudes and with exposures. Dr. Spœhr continued his investigations of the action of light and heat in producing chemical changes in plant organisms. Several collaborators contributed to the work of the department during the year. These include Prof. W. L. Tower, Prof. B. E. Livingston, Prof. H. M. Richards, and Prof. D. S. Johnson.

Department of Experimental Evolution. In this department many additional contributions to the laws of human inheritance were made during the year. The director divided his time between researches based on breeding experiments carried on at his station and studies of data bearing on human heredity collected under the auspices of the Eugenics Record Office, of which he is also the directing head. The biochemical laboratory, in charge of Dr. Gortner, has attested its importance during the year by the aid rendered in the compelx studies essential to further advances in the problems of plant and animal evolution.

Department of Economics and Sociology. Substantial progress toward the completion of the several contributions from the twelve divisions of this department to their projected basis for a social and economic history of the United States was made during the year under the direction of Prof. Henry W. Farnam. It is estimated that by the middle of 1914 six of the divisions will be able to present final reports. These are the divisions of population and immigration, in charge of Professor Willcox; mining, in charge of Mr. Parker; transportation, in charge of Professor Meyer; domestic and foreign commerce, in charge of Professor Johnson; the labor movement, in charge of Professor Commons; and social legislation, in charge of the chairman.

Geophysical Laboratory. Important researches into the effects of pressure in the formation of minerals, in the perfection of adequate appliances for calorimetric measures of minerals, and into the data thus far obtained in volcano studies, were carried on during 1913. During the year forty-seven papers were issued by the staff of the laboratory.

Department of Historical Research. The purposes of this department are to furnish aids, guides, and reports which may give appropriate direction to the writers of monographs and general histories; and to furnish full textual publications of important historical documents. Progress was made in both branches of the department in 1913. Searches were made in various European archives for material relating to American history, and these were very successful.

Department of Marine Biology. This department has its laboratory on Loggerhead Key, Dry Tortugas, Florida, but changing conditions will necessitate a removal in the near future. Studies were made during the year into the problem of the origin of coral reefs. An expedition sailed from San Francisco for Sydney, Australia, on July 23, 1913, and arrived at Tortugas Straits early in September.

Department of Meridian Astrometry. Mr. Benjamin Boss, son of the former director of the department, Prof. Lewis Boss, who died in 1912, was made acting director in 1913. The chief work of the department in 1913 was concerned with precise determinations of stellar positions at different epochs. These researches have shown that the proper motions of the stars brought to light through these determinations are not of a random character, as was hitherto supposed, but are of a systematic nature dependent in large degree, apparently, on the stage in evolution any individual star has reached, and on the group to which it belongs. These and other studies were carried on at the temporary observatory at San Luis, Argentina. An inclusive catalogue of the precise positions of stars in both hemispheres is being compiled at this laboratory.

Nutrition Laboratory. The director of the laboratory made during the year a tour to Europe for the purpose of studying laboratories, hospitals, etc. Many valuable suggestive results were obtained from his investigations.

Department of Terrestrial Magnetism. One of the noteworthy events of this department during the year was the completion of the second cruise of the non-magnetic ship *Carnegie.* The aggregate distance covered in the two cruises was in round numbers 160,000 miles. Accurate magnetic data have been obtained of all oceans between the parallels of fifty degrees north and fifty degrees south latitude. Magnetic surveys of land areas also proceeded at a favorable rate during the year. These included surveys in the Desert of Sahara, in Canada, and in South America.

Solar Observatory. Additional equipment and the application of appropriate methods of research have in recent years made the work of this observatory at Mount Wilson increasingly productive. For the most important results, see Astronomy.

Grants to different departments made during the year amounted to $751,259. Of these, the largest grant, $210,263, was made to the department of terrestrial magnetism. Minor grants for carrying on other investigations amounted to $111,692. For publication there was authorized during the year an expenditure of $66,693. There was also authorization for the publication of twenty-five volumes during the year. Two hundred and fifty-nine volumes, embracing a total of 67,000 pages of printed matter, have been thus far issued by the institution. The president is Robert S. Woodward.

CARNIOLA. See Austria-Hungary.

CAROLINE ISLANDS. A group of islands lying north of New Guinea and forming part of the German New Guinea Protectorate. The main islands have an aggregate area of 307 sq. miles and a population (1911) of 55,000, mainly Micronesians. The islands were ceded to Germany by Spain in 1899 in consideration of the sum of 16,750,000 marks.

CARRANZA, Venustiano. See Mexico, *History*.

CARRINGTON, Sir Frederick. An English major-general, died March 22, 1913. He was born in 1844. He entered the army, and in 1875 he commanded a body of mounted infantry in the expedition to Griqualand West for the purpose of quelling a rebellion. In 1877 he fought the rebellious Kaffirs, and so achieved distinction. He commanded the Transvaal Volunteer Force in 1878, and later a force in Basutoland which worsted the Basutos. Made colonel in 1884, he took part in several expeditions in South Africa, and organized the Bechuanaland Border Police of which he held command until 1888. He then organized and commanded native levies in Zululand; and he took part in the Matabele War of 1893. On his promotion to the rank of major-general in 1895 he was given command of the infantry at Gibralter, and served here until 1899. During that time he did special service in South Africa, suppressing a rebellion in Rhodesia. In recognition of these services he was made K. C. D. In the Boer War, with a temporary rank of lieutenant-general, he led an expedition which marched from the East Coast through southern Rhodesia and entered the Transvaal soon after the main army, under Lord Roberts, had captured Pretoria.

CARRINGTON, Sir John Worrell. A British public official, died February 7, 1913. He was born in Barbadoes in 1847, and educated in that country and at Lincoln College, Oxford. Admitted to the bar in 1872, he returned to Barbadoes and held many offices under the government. He was solicitor-general in 1876, member of the Legislative Council from 1878 to 1881, acting attorney-general in 1880 and 1881, and in 1882 chief justice at St. Lucia and Tobago. From 1883-85 he administered the government of the latter island. In 1886 he was appointed attorney-general of British Guiana, and from 1896 to 1902 was chief justice of the Supreme Court at Hongkong, China. In the latter year he retired on a pension.

CARSON, Sir Edward. See Great Britain, *Home Rule Bill* and *War or Conference*.

CARTHAGE. See Arbitration, International.

CASEY, Silas. Rear-admiral of the United States navy, retired, died August 14, 1913. Born in East Greenwich, R. I., in 1841, he graduated from the United States Naval Academy in 1860, and served from 1860-62 on the *Niagara*, and in 1862-3 with the South Atlantic blockading squadron. He participated in the first attack on Charlestown under Admiral Dupont, and in the attack on Fort Fisher in 1864. After the war, he was on duty at the Naval Academy from 1867-69. He was made commodore in 1874, and in the same year commanded the Navy Yard at Philadelphia. He was in command at other navy yards and on sea duty until 1901, when he was appointed commander-in-chief of the Pacific fleet. He served in this office until 1903, when he was retired. He was appointed rear-admiral in 1899.

CAT-AND-MOUSE ACT. See Great Britain, *Politics and Government;* and Woman Suffrage.

CATHOLIC UNIVERSITY OF AMERICA. An institution of higher learning founded at Washington, D. C., in 1887. The total number of students in 1912-13 was 1037. There were 74 professors and instructors. The total value of the property of the university in 1913 was $2,682,600. There is connected with the university a teachers' college which was opened in 1911. The library contains about 100,000 volumes. The rector is Rt. Rev. Thomas J. Shahan.

CATSKILL AQUEDUCT. See Aqueducts.

CATTLE. See Dairying and Stock-Raising.

CAVALRY. See Military Progress.

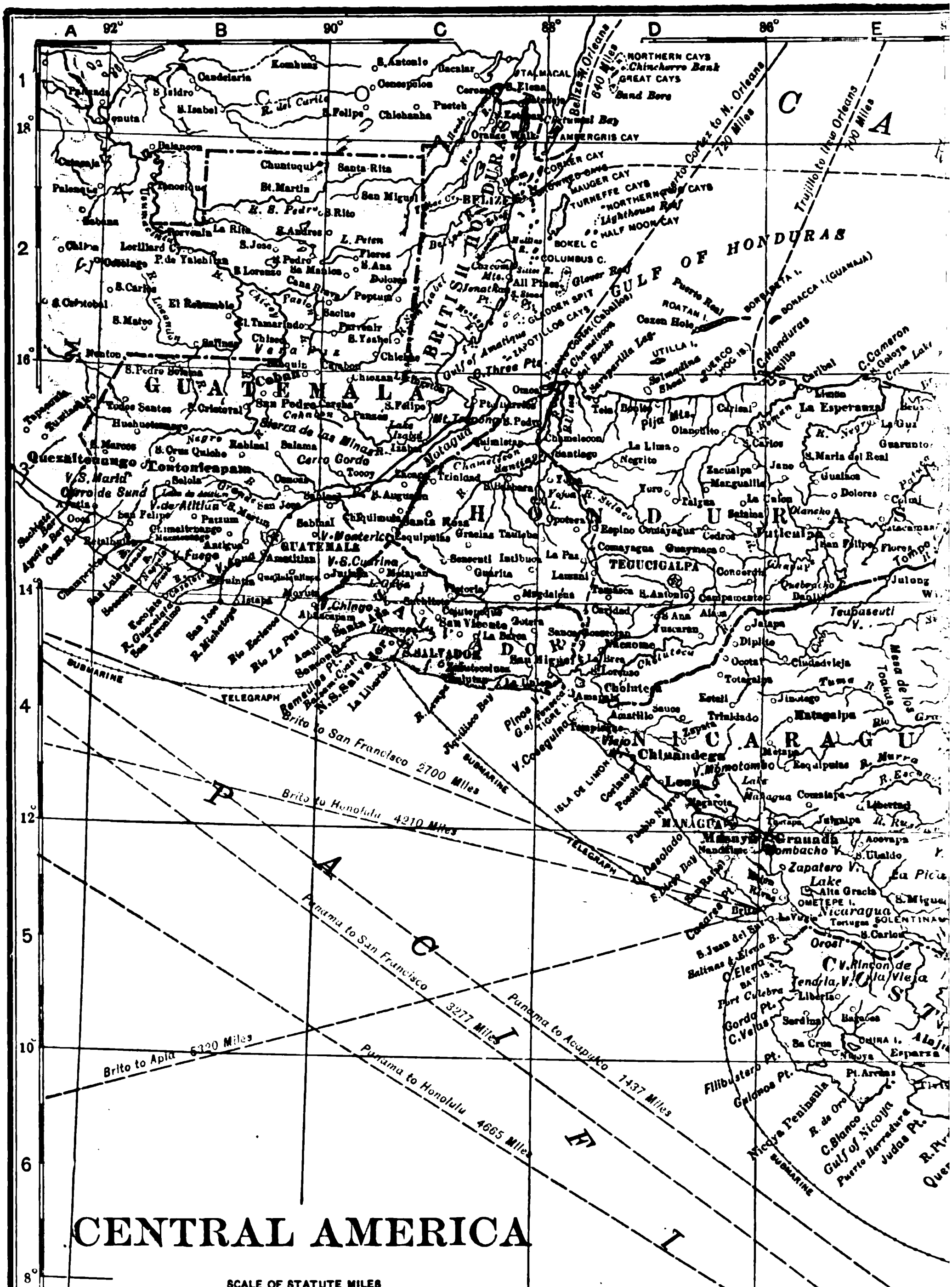
CAYENNE. See French Guiana.

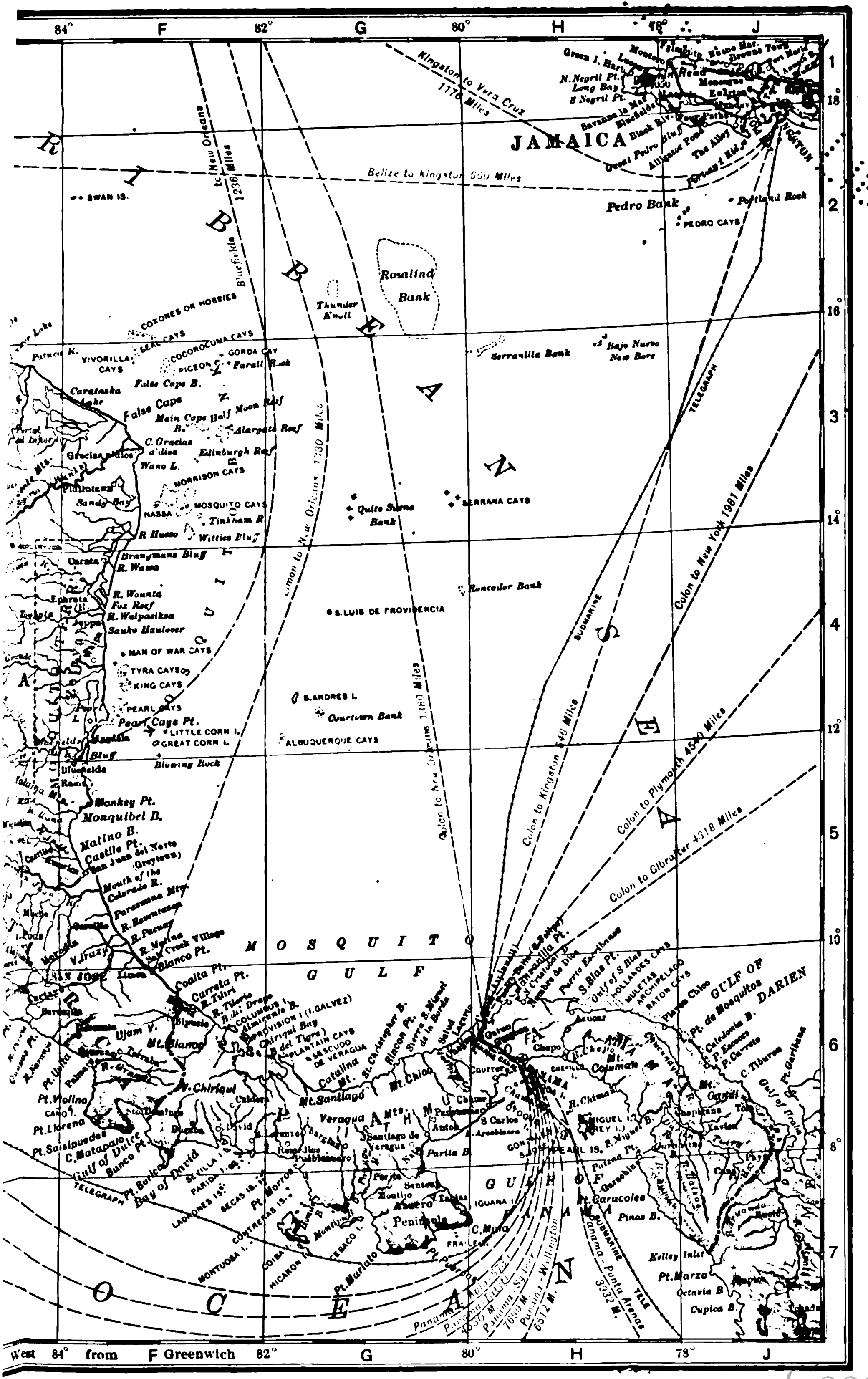
CAYMAN ISLANDS. A group of islands (Grand Cayman, Little Cayman, and Cayman Brae) administratively attached to Jamaica but governed locally by a British commissioner.

CELLULOSE. See Chemistry, Industrial.

CELTIC PHILOLOGY. See Philology, Modern.

CEMENT. The total quantity of Portland, natural, and puzzolan cement produced in the United States in 1912 was 83,351,191 barrels, valued at $67,461,513, compared with 79,547,958 barrels valued at $66,705,136 in 1911. Of this quantity, by far the greater amount was Portland cement Of this cement there were produced in 1912 82,438,096 barrels, valued at $67,016,928. This represents an increase in production in 1911 of 3,909,450 barrels. Pennsylvania is the leading State in the production of Portland cement. In that State there were produced in 1912 26,491,338 barrels in 23 producing plants. In Indiana the production was 9,924,124 barrels. In California it was 5,974,299; in New York, 4,492,806, and in Missouri, 4,355,741. Other important States are Illinois, New Jersey, Michigan, Iowa, Kansas, Ohio, Washington and Utah. The total number of producing plants was 109 in 1912, compared with 115 in 1911. The approximate consumption of Portland cement in 1912 was 80,865,527 barrels. The average price a barrel for the whole country was 81.3 cents, as compared with 81.4 cents in 1911. The Pacific Coast district is practically the only field of extension of the Portland cement industry at the present time. The exports of Portland cement in 1912 were 404,215,532 barrels, valued at $6,160,341. There were imported 68,503 barrels. The exports and imports have shown great decrease in recent years. There were 15 plants producing


CENTRAL AMERICA
SCALE OF STATUTE MILES
0 10 20 30 40 50 100 150 200
SCALE OF KILOMETERS
0 50 100 150 200 250 300
Important towns are shown in heavy face type
Railways are shown thus
L. L. POATES ENGR'G CO., N.Y.
Longitude
GUATEMALA
BRITISH HONDURAS
HONDURAS
SALVADOR
NICARAGUA
GULF OF HONDURAS
PACIFIC
GUATEMALA
TEGUCIGALPA
MANAGUA
BELIZE
Brito to San Francisco 2700 Miles
Brito to Honolulu 4210 Miles
Brito to Apia 5320 Miles
Panama to San Francisco 3277 Miles
Panama to Acapulco 1437 Miles
Panama to Honolulu 4665 Miles
Belize to N. Orleans 840 Miles
Puerto Cortez to N. Orleans 720 Miles
Trujillo to New Orleans 700 Miles
SUBMARINE TELEGRAPH


84°
F
82°
G
80°
H
78°
J
1
18°
2
16°
3
14°
4
12°
5
10°
6
8°
7
JAMAICA
Kingston to Vera Cruz 1170 Miles
Belize to Kingston 650 Miles
Bluefields to New Orleans 1236 Miles
Limon to New Orleans 1230 Miles
Colon to New Orleans 1380 Miles
Colon to Kingston 546 Miles
Colon to New York 1981 Miles
Colon to Plymouth 4540 Miles
Colon to Gibraltar 4318 Miles
SUBMARINE TELEGRAPH
Green I. Harb.
N. Negril Pt.
Long Bay
S. Negril Pt.
Savanna la Mar
Bluefields
Black Riv.
Great Pedro Bluff
Alligator Pond
The Alley
Portland Ridge
Montego
Lucea
Runaway Bay
Kingston
Pedro Bank
PEDRO CAYS
Portland Rock
SWAN IS.
Rosalind Bank
Thunder Knoll
CORONES OR HOBBIES
SERC CAYS
COCOROCUMA CAYS
VIVORILLA CAYS
GORDA CAY
PIGEON C.
Farall Rock
False Cape B.
False Cape
Caratasca Lake
Main Cape
Half Moon Reef
Alargate Reef
C. Gracias a'dios
Gracias a'dios
Edinburgh Reef
Wano L.
MORRISON CAYS
MOSQUITO CAYS
Sandy Bay
Tinkham R.
R. Husso
Witties Bluff
Braymans Bluff
R. Wawa
R. Wounta
Fox Reef
R. Walpasiksa
Sauke Haulover
MAN OF WAR CAYS
TYRA CAYS
KING CAYS
PEARL CAYS
Pearl Cays Pt.
LITTLE CORN I.
GREAT CORN I.
Bluff
Blowing Rock
Bluefields
Serranilla Bank
Bajo Nuevo
New Bore
Quito Sueno Bank
SERRANA CAYS
Roncador Bank
S. LUIS DE PROVIDENCIA
S. ANDRES I.
Courtown Bank
ALBUQUERQUE CAYS
Monkey Pt.
Monquibel B.
Matina B.
Castille Pt.
San Juan del Norte (Greytown)
Mouth of the Colorado R.
Paresmena Mt.
R. Reventazon
R. Pacuar
R. Matina
Creek Village
Blanco Pt.
Limon
SAN JOSÉ
Caolta Pt.
Carreta Pt.
R. Tilorio
B. del Drago
COLUMBUS I.
Almirante B.
PROVISION I. (I. GALVEZ)
Chiriqui Bay
B. del Tigre
PLANTAIN CAYS
ESCUDO DE VERAGUA
Catalina
Mt. St. Christopher B.
Rincon Pt.
Sierra S. Miguel de la Borda
Salud
Mt. Chico
Mt. Blanco
Ujam V.
Mt. Santiago
Veragua Mts.
Santiago de Veragua
Parita B.
Chagres
S. Carlos
Chepo
Mt. Columbia
R. Chimán
PANAMA
MOSQUITO GULF
Portobello
Manzanilla Pt.
Nombre de Dios
Puerto Escribanos
S. Blas Pt.
Gulf of S. Blas
MULATAS
HOLLANDES CAYS
ARCHIPELAGO
RATON CAYS
Playa Chico
Pt. de Mosquitos
GULF OF DARIEN
Caledonia B.
Pt. Escoces
Pt. Carreto
C. Tiburon
Gulf of Uraba
Pt. Garibana
Mt. Gandi
Kelley Inlet
Pt. Marzo
Octavia B.
Cupica B.
MIGUEL I.
REY I.
PEARL IS.
S. Miguel B.
Garachiné
Piñas B.
Pt. Caracoles
IGUANA I.
FRAILES
C. Mala
Pt. Puercos
Azuero Peninsula
Montijo
Pt. Mariato
CEBACO I.
MICARON I.
COIBA I.
MONTUOSA I.
CONTRERAS IS.
SECAS IS.
Pt. Morros
LADRONES IS.
PARIDA I.
SEVILLA I.
Bay of David
David
Pt. Burica
Gulf of Dulce
Burica Pt.
C. Matapalo
Pt. Salsipuedes
Pt. Llorena
CAÑO I.
Pt. Violino
R. Chiriqui
TELEGRAPH
GULF OF PANAMA
PACIFIC OCEAN
Panama - Acapulco
Panama - San Francisco 3250 M.
Panama - Sydney 7680 M.
Panama - Wellington 6512 M.
Panama - Punta Arenas 3332 M.
SUBMARINE TELEGRAPH
CARIBBEAN SEA
West 84° from F Greenwich 82° G 80° H 78° J

natural cement in 1912, and the production was 821,231 barrels, valued at $267,222. The largest production was in New York and Pennsylvania. Considerable quantities were produced in Illinois, Indiana, Ohio, Minnesota, and Kansas. Puzzolan cement was manufactured in 1912 at three plants in the United States, at North Birmingham, Ala., Struther, Ohio, and Sharon, Pa. The total output was 91,864 barrels.

The production of Portland cement in 1913 exceeded that of any previous year, according to the estimates of the U. S. Geological Survey. In the United States 92,406,000 barrels of Portland cement were manufactured, an increase of 12 per cent. over 1912. The shipments in 1913 were 88,853,000 barrels—an increase of 4.5 per cent. The average selling price per barrel was higher in 1912 than in 1913. Of the 11 commercial districts, the five highest with their production in barrels and their per cent. of increase over 1912, were as follows: (1) eastern Pennsylvania and western New Jersey, 27,079,000, 9.4 per cent.; (2) Illinois and northwest Indiana, 12,406,000, 16.4 per cent.; (3) California and Washington, 8,916,000, 21.5 per cent.; (4) Iowa and Missouri, 8,427,000, 11.1 per cent.; (5) Ohio and western Pennsylvania, 7,704,000, 4.7 per cent. A cement which partakes of the natures of both Portland and puzzolan cement was produced in connection with the Los Angeles aqueduct in California. It is made by regrinding Portland cement with volcanic tuff, and is called locally "tufa cement." The output of this cement in 1912 was 205,000 barrels, valued at $1.50 a barrel.

CENSUS, THIRTEENTH. See UNITED STATES CENSUS BUREAU.

CENTENARIES. See EXPOSITIONS.

CENTRAL AMERICA. See articles on Central American countries.

CEREBRO-SPINAL MENINGITIS. See MENINGITIS.

CEYLON. A British crown colony: an island in the Indian Ocean. Its area is 25,332 square miles and its population (according to corrected figures for the 1911 census) 4,110,367, inclusive of military, shipping, and estates. Colombo is the capital, with 213,396 inhabitants. Government schools are non-sectarian and instruction in the vernacular is free.

Of the total area, about one-fourth is under cultivation; on the tea and other estates there are about 440,000 East Indian coolies, and the same labor is employed on plantations where ice, cocoanuts, grains, rubber, cinnamon, cacao, tobacco, coffee, and cinchona are grown. The pearl banks near Manaar, leased to an English company, have been resumed by the government. The yield of the plumbago mines and pits is estimated at over Rs. 9,484,000. There are 1986 gem quarries.

Tea has long been the staple product of the island; the development of the industry is shown by the following export figures: 1884, 2,392,963 pounds; 1890, 45,799,518 pounds; 1900, 170,183,558 pounds; 1910, 182,070,094 pounds; 1911, 186,594,055 pounds.

The decline in the price of tea has led since 1898 to the more extensive cultivation of rubber in response to the increasing demand. In 1898 only 750 acres were under rubber cultivation; in 1901, 2500; in 1904, 11,000; in 1905, 40,000; in 1906, 100,000; in 1907, 150,000; in 1908, 180,000; in 1911, about 215,000.

The export of cocoanut-palm products was valued in 1911 at Rs. 38,086,242; of cinnamon, Rs. 2,086,293; of cacao, Rs. 2,370,773. From India the colony imports rice (Rs. 45,409,525 in 1911); and from the United Kingdom, coal and textiles. The total value of all imports for the calendar year 1911 amounted to Rs. 164,405,788—Rs. 43,443,786 from the United Kingdom and Rs. 100,095,273 from British colonies. The exports were valued at Rs. 182,028,968—Rs. 87,359,604 to the United Kingdom and Rs. 25,492,338 to British colonies.

The railway lines, as completed to February 1, 1913, were as follows: Colombo-Bandarsawela (160¾ miles), Polgahawela-Kankesanturai (211¼), Peradeniya Junction to Kandy and Matale (21), Ragama Junction to Mahara Quarry (1½), Colombo-Matara (98½), Ragama-Negombo (14½), Fort Junction to Wharf (1¼)—all broad guage (5 ft. 6 ins.); Colombo-Yatiyantota (47¾), Avisawella-Ratnapura (27), Nanu Oyato Ragalla (19¼)—narrow gauge (2 ft. 6 ins.) : 603⅝ miles in all, and all government-owned and operated. Under construction are the broad-gauge lines, Madawachchi-Talaimannar (66 miles) nearly completed, Negombo-Chilaw (27), Bandarawella-Badulla (21), and the narrow-gauge Ratnapur-Kahawatte (for Pelmadulla) (17). The Manaar extension will connect the India and the Ceylon systems except for the 20 miles of water plied by the South Indian Railway Company steamers from Dhanuskodi and Talaimanaar. Cost of railway construction to June 30, 1911, Rs. 95,657,026; receipts for year ending June 30, 1911, Rs. 13,583,160; expenditure Rs. 6,337,583.

At the end of the year the railway connection between India and Ceylon, excluding the actual channel crossing, was nearing completion. There was involved the bridging of the Pamban strait and an extension from Madawachchi Junction to the western point of Manaar Island. Ferry steamers will be necessary to connect the two systems, but a survey had been made with a view of utilizing the shoal known as Adam's Bridge for the construction of a railway bridge. The survey for the 22 miles of distance estimated the expense at £833,000. The fulfilment of this plan was rendered more difficult from the fact that the gauges of the lines on either side of the straits were different. In the island proper an extension between Chilau from Negombo northwards was in progress.

An extension of the southwest breakwater, costing £380,000, commenced in December, 1907, was completed in April, 1912. It is 1800 feet long and protects the entrance from the southwest monsoon seas. A water system for Colombo has been completed.

The revenue (derived mainly from customs, and sales, licenses, salt, stamps, and railway receipts) amounted for 1911-12 to Rs. 47,264,222; the expenditure to Rs. 48,643,687. Customs revenue (1911-12), Rs. 12,554,533; from salt sales, Rs. 1,631,381. The public debt stood June 30, 1912, at Rs. 92,073,409. Tonnage entered and cleared (1911-12), 14,926,764 (9,571,159 tons British).

The governor (1913, Col. Sir H. E. McCallum) administers the colony, aided by an executive council of seven members and a legislative council of twenty-one.

CHAMBERLAIN, LEANDER TROWBRIDGE. An American clergyman and author, died May

9, 1913. Born in 1837, and graduated from Yale in 1863, he studied at the Andover Theological Seminary. From 1863-67 he was assistant paymaster in the navy and was also judge advocate for the Pacific Squadron. Previous to that time he had been pastor of several churches in Chicago and Brooklyn. He was at different times president of the Evangelical Alliance of the United States, of the American and foreign Christian Union, and of the New York Colonization Society, and was also vice-chairman of the National Arbitration Commission between Great Britain and the United States. He wrote, among other books: *A Short History of the English Bible; The Colonial Policy of the United States;* and *The Suffrage and the Majority Rule.*

CHANNEL TUNNEL. See Tunnels.

CHAPMAN, Henry Leland. An American scholar and educator, died February 24, 1913. He was born in Bethel, Maine, in 1845, and graduated from Bowdoin College in 1866. He studied theology at the Bangor Theological Seminary, graduating in 1869. In 1875 he was appointed professor of English Literature at Bowdoin College, and remained in this position until the time of his death. For two years, beginning in 1883, he was acting president of the college, and from 1887 to 1911 was president of the board of trustees of the Bangor Theological Seminary.

CHARITIES. A striking characteristic of recent years is the growth of charitable and philanthropic activities and the determined effort on the part of those leading such to give them a sounder basis. While relief work of various kinds is inevitable the keynote now being struck is that of prevention. Greater care is being exerted to see that the relief granted does not become a cause for additional demands. There is much scientific inquiry into the causes of poverty, delinquency, and crime, on the principle that only when causes are known can these evils be stamped out. As a result of this closer analysis of conditions demands are being made for advanced legislation to equalize opportunities and realize a larger social justice in industrial and social organizations.

In addition to the material below reference should be made to the following articles: Child Labor; Juvenile Courts; Labor; Labor Legislation; Minimum Wage; Occupational Diseases; Penology; Old-Age Pensions; Social Economics; Welfare Work; Women in Industry; and Workingmen's Insurance.

National Conference. The National Conference of Charities and Corrections met at Seattle, July 5, 1912, for its 40th annual session. The total attendance of members was about 800. The programme was comprehensive, but throughout the addresses ran the doctrine of "justice not charity" and the demand for far-reaching industrial and social reconstruction to meet the demands of the new sense of "social justice." Another prominent feature was the manifest approval of the idea that social problems must be worked out by governmental rather than social agencies. Thus the burden of crime, poverty, and invalidity is placed upon the whole community, and reliance is placed in the efficiency of regenerated, responsive, and responsible democratic government. Special attention was given to immigration, especially Oriental; to Juvenile courts, and the treatment of unfortunate children in both city and country; to the relation of the churches and of commercial bodies to social work; to probation and parole; and to case work and definite local programmes in the work with families and neighborhoods.

The 1914 meeting will be held at Memphis, Tennessee. The following committees and chairmen were named: Hygiene, Maude E. Miner; children, Mrs. Mary V. Clark; standard of living and labor, Charles P. Neill; health, Dr. Richard C. Cabot; public charities, Dr. J. T. Mastin; defectives, including mental hygiene and defective delinquency, Dr. Llevellys Barker; family and community, Eugene T. Lies; neighborhood development, Mary McDowell; correction, Amos W. Butler.

American Association of Officials of Charity and Correction. This body was derived from the Association of Poor Law Officers. It held its annual conference at Springfield, Illinois, early in July, with seventy delegates from fifteen States present. Composed very largely of public charity officials, it gave special attention to practical administrative problems. Several speakers urged the advantages of municipal or State farms for youthful and short-term offenders from the viewpoint of the delinquent, the public, and the administrator. The conference was overwhelmingly of the opinion that private charity must, in most places, be supplemented by public relief, and that there was a steady improvement in the efficiency of public administration because of the better training of officials. It was planned to hold the next conference at Memphis immediately after that of the National Conference of Charities and Correction.

Census of Benevolent Institutions. As a part of the Thirteenth Decennial Census there was issued a report on institutions for the care of children, houses for adults, institutions for blind and deaf, and hospitals, sanitariums and dispensaries for the sick. The total number of institutions reported was 5397, with 380,337 inmates or persons under care at the close of the census year. Compared with the previous special census of 1904 there was an increase of 1346 institutions, and moreover day nurseries numbering 166 in 1904 were not included in 1910. Inmates increased 95,975; children received during the year increased 11,186; patients treated in hospitals increased 911,326, and in dispensaries, 827,408. Institutions for adults or adults and children received 109,319 fewer persons in 1910 than in 1904, this decrease being chiefly confined to institutions for the temporary care of destitute men; institutions for blind and deaf received 4471 fewer. The report stated that any explanation of these increases and decreases in numbers must await a more careful study.

The report showed that there were 1152 orphanages and homes for the care of children in the United States; they received during 1910, 82,011 children; had present on December 31, 1910, 107,401; and had placed out during the year, 14,031. Societies for the aid and protection of children numbered 212; in 1910 they placed out 23,794 and had under care 35,279 children. There were 1142 homes for adults or adults and children; they received during the year 788,691 persons and had present on the census day 121,876. The blind and deaf were cared for in 119 institutions with 15,418 inmates, 2554 having been received during the year. Hospitals and sanitariums numbered 1886 with 94,374 persons present and 1,975,833 treated during 1910. There were 576 dispensaries which had treated during the year 2,439,059 persons. The increase in number of dispensaries was 420, of which nearly 200 were county dispensaries in Pennsylvania for the treatment of tuberculosis. The number of hospitals and sanitariums also was increased largely by the greater provisions for the care of the tubercular.

An increase in the number of institutions was reported for nearly every State and, in somewhat similar proportions, showing the growth of humanitarian feeling not only in the industrial communities but in the more sparsely settled States. New York led in number with 797, an increase of 200 since 1904; Pennslyvania had 692, an increase of 301; Massachusetts, 359, an increase of 104; Illinois, 324, an increase of 39; Ohio, 311, an increase of 52; and New Jersey, 207, an increase of 58.

Cleveland. Early in the year was formed the Cleveland Federation for Charity and Philanthropy, being an alliance of fifty-three social organizations. Its main object was to collect funds for all member societies through one central agency, thus effecting not only great economy of money and the time of officers, but also freeing givers from the repeated demands of many collectors. By an educational campaign the Federation expected to increase the number of donors and the aggregate funds. The economies effected were striking. The cost of collections, including time of officers and commissions to collectors, was formerly about $50,000. Not only was three-fourths of this saved, but the entire time of officers could be devoted to administration.

Chicago. At the suggestion of Professor Charles R. Henderson, president of the United Charities of Chicago, most of the charitable and philanthropic agencies of the city entered into a common agreement to furnish the public with full and accurate information regarding their work and finances. The aggregate amount contributed and expended by these agencies was about $13,000,000. The plan did not involve a scheme for federated money raising.

Cincinnati. Similarly in Cincinnati, following the concerted action to deal with the relief problems raised by the spring floods, there was organized a council of social agencies. This was composed of sixty civic and philanthropic bodies seeking to coöperate by an exchange of case records, the avoidance of implication in family relief, the establishment of uniform accounting, the standardizing of solicitation for funds, and the carrying on of surveys and investigations.

Los Angeles. This was the first city in America to create a municipal charities commission with authority to certify organizations seeking funds for charity. Such certification is usually done by a business body or the associated charities. Not only will the new commission protect the public from impostors but it will prevent the overlapping and the misdirection of philanthropic undertakings. Complete financial responsibility, including accurate receipting and accounting, is required of every endorsed organization. The commission is itself empowered to receive and distribute funds and to maintain a free employment bureau.

CHARITY AND CORRECTION, American Association of Officials of. See Charity.

CHARTER REFORM. See Municipal Government.

CHARTERS, Municipal. See Municipal Government.

CHATHAM ISLANDS. A dependency of New Zealand (q.v.).

CHAUTAUQUA INSTITUTION. The fortieth annual assembly of the Chautauqua Institution was held at Chautauqua from July 5 to August 24, 1913. While the summer schools were never so heavily attended as in 1913, the general attendance fell off somewhat, chiefly on account of the flood in Ohio and other western States. There were courses in fourteen departments, six of which are included in the ordinary college curricula, and eight of which are given over to specialized forms of professional work. There were fourteen courses in English, thirteen in French, ten in German, four in Latin, and twenty-two in mathematics and sciences. In addition to the courses especially designed for teachers, there were nearly 200 other courses of various kinds, which included English language and literature, modern languages, mathematics and sciences, religious teaching, music, physical education, agriculture, practical arts, etc. The special days observed were national army day, July 12; federation day, August 2; denominational day, August 6; grange day, August 9; recognition day, August 13; closing day, August 24. The officers of the institution in 1912 were John H. Vincent, chancellor; George E. Vincent, president; and Arthur E. Bestor, director.

CHEESE. See Dairying.

CHEMICAL ENGINEERS, American Institute of. See Chemistry, Industrial.

CHEMICAL INDUSTRY, Society of. See Chemistry, Industrial.

CHEMICAL SOCIETIES, International Association of. See Chemistry, Industrial.

CHEMICAL SOCIETY OF AMERICA. See Chemistry, Industrial.

CHEMISTRY. Radio-Active Elements. Some progress was made during the past year in the systematization of the radio-active elements and their disintegration products, and in locating them in the periodic system. There appears to be a general law that in an α-ray change, when a helium atom is expelled carrying two charges of positive electricity, the element moves two groups to the left in the periodic table, as from the 6th to the 4th group. In every β-ray change, when a single charge of negative electricity is expelled, the element moves one group to the right, as from the 4th to the 5th group, and this is also the case in the two rayless changes. It seems to follow from this, that it is possible for more than one element to occupy the same place in the periodic table, and Soddy, who has been one of the principal workers along this line, holds that this is in fact the case, and that certain elements with different atomic weights are chemically indentical. Thus work by Fleck seems to show the chemical identity of uranium-X and radio-thorium with thorium, of meso-thorium with actinium, of radium-A with polonium, of radium-C, thorium-C, actinium-C and radium-E with bismuth, of radium-B, thorium-

B and actinium-B with lead, and of thorium-D and actinium-D with thallium. Some experimental work by Whytlaw-Gray seems to point in the same direction. This work was done on three tubes of niton (radium emanation) which were sealed up by Ramsay four years before. After this length of time the tubes should contain radium-D with equilibrium quantities of radium-E and radium-F, as well as about fifteen per cent of radium-G, the end element of the series. The material in the tubes was found to be metallic in appearance and on treatment with chlorine gave non-volatile chlorides, soluble, but with difficulty, in water. The solution gave chemical tests for lead, as would be the case if radium-G is identical with that metal, but the quantity was nearly twice that corresponding to the amount of radium-G present, so that radium-D must also give chemical reactions similar to those of lead. The idea that the atomic weight of an element is not a mixed quantity, but is the average weight of atoms, similar chemically but varying in weight within narrow limits, is by no means new, but the work of the year 1913 was the first experimental evidence along this line, and it must be noted that this work is confined to elements with atomic weights above 200. (See also CHEMISTRY, INDUSTRIAL, and RADIOTHERAPY.)

COSMIC CHEMISTRY. The idea that many of the elements in the earth's crust are actually present in a free molecular condition but at infinitesimal concentration, is advanced by Wernadski, in a text-book recently published in the Russian language. In almost every portion of the rocks of the earth the spectroscope reveals the presence of many of the elements which are considered very rare, and many of these are also found in minutest traces in the ocean. In many cases at least these elements are not found in stroichiometric compounds, but in solid (in the ocean, liquid) solution. Warnadski speaks of them as being in a "microcosmic mixture." As one possible source of such elementary condition it may be noted that in volcanic extrusions many elements are present in a gaseous condition, and that this condition is a state peculiarly susceptible to the action of electric phenomena, of ultra-violet light, and of radio-active emanations.

In this connection it may be noted that in going over much of his former work on the analysis of meteorites and searching by the most modern methods for the elements present in minute quantities only, Merrill has failed to find the following elements which had previously been reported as present in meteorites, viz., antimony, arsenic, gold, lead, tin, tungsten, uranium and zinc. On the other hand not only was platinum found beyond dispute (in the Perryville meteorite), but also ruthenium and iridium. In two cases vanadium was found, but in no case barium, strontium or zirconium. This last is peculiar, as no reason can be suggested for the absence of these metals.

A paper by Chamberlain offers some new suggestions on cosmic chemistry. All magmatic masses contain considerable quantities of gases, but these gases are very different in composition and proportion from the gases which make up our present atmosphere. Water and carbon dioxide were certainly constituents of the original magma, and as these gases were liberated from the hot magma carbon monoxide and methane were formed by interaction. Here is one possible source of natural hydrocarbons. In the rock masses of the earth oxygen is found only in combination, but the earth interior is very poor in oxygen and the crust as a whole is suboxidized. Atmospheric oxygen appeared late in the geological history of the earth, and was formed by the decomposition of oxides, especially of water. Later, when plant life had appeared on the earth, the oxygen of the atmosphere was increased by the decomposition of carbon dioxide by plants, the carbon being in considerable part stored up in coal deposits.

FIXATION OF NITROGEN. The problem of the fixation of the nitrogen of the air is one that has attracted much attention in recent years. Now that the rectification of liquid air has been so far perfected that the cost of pure nitrogen from this source is not prohibitive, it is of great industrial importance to determine the most economical method of combining that nitrogen with hydrogen to make ammonia for the fertilizer industry, and with carbon for the manufacture of cyanides. Three methods for the fixation of nitrogen may already be considered successful from an industrial standpoint, viz., combination of nitrogen with oxygen in the electric arc, used in the manufacture of calcium nitrate and nitric acid at Notodden and Sauheim in Norway, combination of nitrogen with calcium carbide to form cyanamide, with subsequent production of ammonia, and the combination of nitrogen directly with hydrogen under pressure, the Haber process of making ammonia. Other methods, however, demand investigation, for the last word in the economic production of nitrogen compounds has by no means been uttered. During the year 1913, Ewan and Napier studied the absorption of nitrogen by a mixture of barium oxide and carbon. The absorption apparently takes place according to one or both of the two reactions,

$$BaO + 2C + N_2 \rightleftarrows BaCN_2 + CO, \text{ and}$$
$$BaO + 3C + N_2 \rightleftarrows Ba\ (CN)_2 + CO$$

Both of these reactions appear to be reversible and not to be affected by catalytic agents. Even up to 1100° only half the baryta has been converted into nitrogen compound. The difficulty seems to be in the probable formation of a compound. $BaO.Ba(CN)_2$, which is not further acted on by nitrogen.

Several chemists have studied the fixation of nitrogen by aluminum. Thus Fichter finds that when aluminum powder is heated to 700°, nitrogen is rapidly absorbed with considerable rise in the temperature, and it is not difficult to obtain a pure nitride of the formula AlN. Even when air is led over heated aluminum some nitride is formed at the same time as the oxide, as is evidenced by the perceptible odor of ammonia given off in moist air, since the nitride readily reacts with water with the formation of ammonia. On heating with alkalies and carbon the nitrogen of aluminum nitride is converted, but not completely, into cyanide nitrogen. According to Wolf, this reaction is seriously affected by impurities in the aluminum, the presence of even small quantities of oxygen being objectionable. Nitrogen is also absorbed by a heated mixture of alumina and carbon, as was first carried out by Serpek. This reaction,

$$Al_2O_3 + N_2 + 3C \rightleftarrows 2AlN + 3CO,$$

has been studied by Frankel, who finds that when soot is used the reaction begins at 1400°

and is reversible. At 1500° equilibrium is reached when the amount of CO in the gas is 25 to 40 volume per cent., and at 1600° when the CO is 50 to 65 per cent. Above 1500° carbide begins to be formed, and the reaction is strongly influenced by the kind of carbon used. The fixation of nitrogen by boron offers a particularly attractive field of study, for not only does boron have a peculiarly strong affinity for nitrogen, but the compound BN contains a larger proportion of nitrogen than any other solid nitride. From boron nitride may be obtained both ammonia and the cyanides, and the compound itself makes an excellent refractory material for many industrial purposes. According to the work of Stähler and Elbert, 1500° to 1700° is the most favorable temperature for the reaction

$$B_2O_3 + 3C + N_2 \rightleftarrows 2BN + 3CO,$$

but the absorption of nitrogen per gram boron is much larger when in the place of boric oxide, borocalcite is used. No carbide is formed when borocalcite is heated with carbon, even at 1700°, but when nitrogen is led over the heated mass it is rapidly absorbed, boron nitride and also calcium cyanamide being formed. The reaction appears to be

$$CaB_4O_7 + 8C + 3N_2 = 4BN + CaCN_2 + 7CO,$$

and there is no evidence that the reaction is reversible. This reaction and that of other borates would seem to merit further study.

Hydrogen Borides. An account was given in the 1912 Year Book of two hydrogen borides which had been prepared by Stock, by the action of acids on magnesium boride. These were the first compounds of hydrogen and boron ever isolated, though a few years earlier Ramsay obtained a gas containing hydrogen and boron which seemed to have the formula H_3B_3, but which was not pure. The two borides of Stock were $H_{10}B_4$ and $H_{12}B_6$. In 1913 Stock carried this exceedingly difficult work still further and found no less than ten different compounds of hydrogen and boron, of which four were in amounts too small for determination of their composition, and of two the formulas could be only approximately determined. The other four borides have been isolated in pure condition and carefully studied. The first boride obtained the past year is H_6B_2, and proves to be decidedly stable, but it is so exceedingly sensitive to the action of water that in the ordinary preparation of these compounds it is completely destroyed, if indeed it is formed at all. On standing, and more rapidly on warming, the boride $H_{10}B_4$ is decomposed and H_6B_2 is one of the products of its decomposition. At ordinary temperatures it is a gas, which can be condensed to a liquid boiling at -87°. By liquid air it can be frozen to a solid which melts below -140°. This boride is analogous to ethane, H_6C_2, which has a boiling point of -90°, so that in this compound the valence of boron must be considered as four. When this boride, H_6B_2, is warmed it slowly decomposes, giving among other products a clear volatile crystalline solid, which melts sharply at 99.5° and which has the formula $H_{14}B_{10}$. This is fairly stable, passing largely unchanged through a tube heated to 400° (in vacuo), and is unacted on by water and hardly affected by concentrated nitric acid. It is soluble in carbon bisulfide and in alcohol. The difficulty of obtaining sufficient for study can be realized from the fact that on decomposing one cubic centimeter of H_6B_2 only half a milligram of $H_{14}B_{10}$ is formed. Two other solid borides were obtained by Stock, one of which contains hydrogen and boron in the ratio of 4H:5B, and the other of which probably contains 12 atoms of boron, as its molecular weight in benzene is about 142. The quantity of these which could be obtained was too small to establish their formulas.

Osmium. A research, quite comparable in its difficulty with that of Stock's work on the hydrogen borides, is that of Ruff on the fluorides of osmium. Fluorine is very difficult to prepare, osmium is very expensive, glass is more or less strongly attacked by the fluorides of osmium, especially if the least trace of water is present, platinum tubes, while not attacked by florin, are opaque and it cannot be seen what reactions, if any, are taking place in them, it is impossible to absolutely exclude oxygen, a trace of which contaminates everything with osmium tetroxide, the osmium fluorides themselves are far from stable compounds, and in addition it is by no means easy to analyze compounds containing osmium and fluorine and to determine the state of oxidation of the osmium. In spite of these difficulties to be surmounted, Ruff has isolated three different fluorides of osmium, OsF_4 which is formed by the direct union of the elements at temperatures below 250°, OsF_6 formed at higher temperatures when the osmium is in excess, and OsF_8 formed when there is an abundance of fluorine. OsF_4 is soluble in water, giving an acid reaction, and appears to be non-volatile; OsF_6 is volatile, boiling at about 202°. At ordinary temperatures it is a solid and attacks glass to such an extent when warmed that it is impossible to determine its melting point, which must lie above 50° and below 120°. In water it is at once hydrolyzed, giving a precipitate of black OsO_2, and hence it instantly gives any damp or organic object with which it may come in contact a black coating. More remarkable, however, is the compound OsF_8, for this is the first compound to be made in which a single atom is combined with eight other atoms of the same kind, and is also the first compound in which a valence of eight is beyond dispute. (Undoubtedly the osmium in osmium tetroxide, OsO_4, is octovalent, though this would not be universally admitted.) Osmium octofluoride is a lemon-yellow crystalline compound, which melts at 34.4° and boils at 47.5°. Organic substances are violently attacked by it, and it dissolves in water to a colorless solution, which smells strongly of osmium tetroxide.

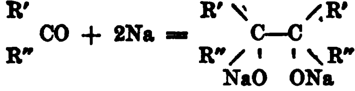
Another important research on osmium is that of Hofmann on the oxidizing properties of osmium tetroxide, and especially its action as a catalytic agent in oxidizing reactions. It has long been known that osmium tetroxide is one of the strongest oxidizing agents in the whole range of chemistry, but that it could be regenerated in the air, though perhaps also known, was certainly not realized. It is a somewhat slow, but very effective carrier of atmospheric oxygen, as is shown by the fact that 200 cubic centimeters of 40 per cent. alcohol were oxidized within three or four hours by the use of 10 milligrams of OsO_4, the product being chiefly acetic acid. More remarkable is its action in conjunction with potassium chlorate. A paper which comes in contact with osmium tetroxide is immediately covered with a black deposit of OsO_2 in hydrated form. If this paper is then dipped in a neutral solution of potassium chlorate the black deposit instantly disappears, being oxidized back to the osmium tetroxide. It follows that a solution of potassium chlorate containing a minute quantity of osmium tetroxide is a most powerful oxidizing agent. Thus a mixture of metallic arsenic and potassium chlorate undergoes no reaction, even in the presence of dilute sulphuric acid, but if a trace of osmium tetroxide is added, the temperature instantly rises and in a moment the arsenic is oxidized with a violent reaction to arsenic acid.

Perhaps more remarkable is the observation of Lehmann that osmium dioxide can act as a catalytic reducing agent, especially as a carrier of hydrogen to unsaturated fats. He describes a lecture experiment in which olive oil is warmed with a little osmium tetroxide, which is, of course, reduced at once to the dioxide. If a current of hydrogen is then led into the oil for a short time, on cooling the oil solidifies to a solid fat. Finally Willstätter finds that finely divided metallic osmium can serve instead of the tetroxide as a catalytic agent in oxidizing reactions with organic substances. Osmium is thus far unique as an element whose oxides can act indifferently as carriers of oxygen and of hydrogen, and were it not for the great cost of osmium, it would undoubtedly find many and important applications in the arts. It is, however, possible that, now one element has been found with these properties, search will be stimulated to find others. Ruthenium tetroxide has the same oxidizing properties as the osmium tetroxide, though to a lesser degree, but unfortunately it is even much more costly than osmium.

SEVERAL NEW COMPOUNDS. Of the many new compounds of inorganic chemistry which have been prepared the past year, a few of the more important may be mentioned briefly. When finely divided silver is shaken with fused arsenious bromide, it dissolves and a compound of peculiar type is formed, Ag_3AsBr_3. That both silver and bromine are directly connected with the arsenic atom is evident from its chemical properties. It would seem that the arsenic possesses strong secondary valence and that it is by means of this that silver is held in the molecule. This corresponds to the fact that arsenious bromide is capable of combining with three molecules of ammonia, also by secondary valence, to form $AsBr_3.3NH_3$. Hilpert, to whom we are indebted for this investigation, has prepared several other compounds of similar type, in which the silver present corresponds to the ammonia of ammoniates. Possibly some of the subhalides which have been described also belong to the same type, as for example, AgF.Ag, $CaF_2.Ca$, and $CaCl_2.Ca$. Fluo-sulphonates, analogous to chloro-sulphonates, as well as the free fluo-sulphonic acid, have been prepared by Traube. Sodium and ammonium fluorides unite directly with sulphur trioxide to form the fluo-sulphonates $NaSO_3F$ and NH_4SO_3F, and the acid is so stable that when the ammonium salt is dissolved in fuming sulphuric acid, the free fluo-sulphonic acid distills over.

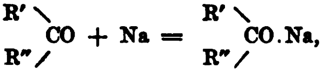
Olsson has made for the first time crystalline salts containing trivalent tungsten, by the reduction of a hydrochloric acid solution of tungstic acid by tin. The potassium salt has the formula $3KCl.2WCl_3$, and the rubidium, caesium, and thallous salts are similarly constituted. It is noteworthy that in these salts trivalent tungsten shows the same tendency to the formation of complex salts that is so characteristic of tungsten trioxide. On leading dry ammonia into a concentrated solution of hydrogen peroxide in absolute ether at -10°, D'Ans and Wedig obtain first beautiful clear crystals of ammonium hydroperoxide, NH_4O_2H, which were first prepared by Melikoff and Pissarjewski some years ago. On further addition of ammonia these crystals fuse to a heavy oily layer, which freezes at -40° to a crystalline mass. On washing with ether at a very low temperature these crystals were obtained in a pure condition, and proved to be ammonium peroxide, $(NH_4)_2O_2$. The crystals fuse at -2°, but even below this temperature begin to lose ammonia and go over into the hydroperoxide.

METAL-KETYLS. What seems to be an entirely new type of compound, the metal-ketyl, is described by Schlenk. These compounds are formed by the action of metallic sodium (or potassium) on certain ketones. In the reaction one atom of the alkali metal is taken up, and a compound formed which contains a trivalent carbon atom, the formula of these compounds being expressed by $K.OC\begin{matrix}\diagup CxHy\\ \diagdown CzHw\end{matrix}$. There are three possible reactions which can take place under the conditions in which these compounds are formed: (1) in case any hydrogen is attached to the next carbon atom to the carbonyl group, an atom of hydrogen may be given off and an unsaturated compound formed, a reaction generally resulting in a condensation to compounds of higher molecular weight; (2) the alkali metal may be added to the carbonyl group and the compound condensed to a di-molecular compound, as



$$\begin{matrix}R'\\ \quad CO\\ R''\end{matrix} + 2Na = \begin{matrix}R'\diagdown & & \diagup R'\\ & C—C & \\ R''\diagup & | \quad | & \diagdown R''\\ & NaO \quad ONa & \end{matrix};$$

or, (3) the alkali metal may be added without condensation. This reaction would be



$$\begin{matrix}R'\diagdown\\ \quad CO\\ R''\diagup\end{matrix} + Na = \begin{matrix}R'\diagdown\\ \quad CO.Na,\\ R''\diagup\end{matrix}$$

the carbon atom being thus trivalent. This third type of reaction Schlenk has found to be not uncommon, but it generally results in compounds so insoluble that it is impossible to determine the molecular weight. In the case of phenyl-diphenyl ketone, the compound formed, $C_6H_5.\begin{matrix}C_6H_4\diagup\\ C_6H_5\diagdown\end{matrix}CO.K$ was found to be definitely monomolecular, and a solution of this metal-ketyl could be used to precipitate the metal-ketyls of numerous other ketones. Like other compounds containing a trivalent carbon atom, the metal-ketyls are exceedingly reactive, and are extremely sensitive to all oxidizing agents, even to the air. They are also characterized by an intense color.

CARBOHYDRATES. Work on carbohydrates was again taken up by Fischer, and by the conversion of glucose into methyl-pentose he cleared up the constitution of the rhamnoses. (Ordinary rhamnose in a methyl-pentose, derived from a glucosid of quercitrin, buckthorn berries, and some other plants.) Fischer starts from the dibromo-derivative of glucose, which proves to have a bromine atom on each end-carbon atom. One bromine atom he replaces by OCH_3, thus forming a methyl-glucosid. The other bromine atom is then replaced by hydrogen, giving a glucosid from which methyl-pentose is easily prepared. This methyl-pentose proves to be identical with isorhamnose. It is interesting that this glucosid of isorhamnose, as well as the methyl-glucosid of glucose from which it is derived, is hydrolyzed by emulsin, so that the substitution of CH_3 for the CH_2OH group does not affect its relation to the enzyme. It had long been known that cellulose could be converted into dextrose, but the yield was small and it could not be said that all the hexose groups in cellulose passed into dextrose on hydrolysis. This proof was furnished by Willstätter, who has succeeded in converting cellulose quantitatively into dextrose, by the action of hydrochloric acid. While ordinary concentrated acid (37.5 per cent.) only disintegrates the cellulose, a stronger acid (40 per cent.) dissolves it with all but complete hydrolysis. The solution is at first optically inactive, but gradually passes over into dextrose. It is probable that some non-reducing sugar is first formed from the cellulose, and is thus an intermediate step in the process. Led by the fact that the action of an enzyme on arbutin is inhibited by the presence of hydroquinone, which is one of the products of the enzyme reaction, Bourquelot was led to suspect that enzymes might have in general a synthetic action. On testing the matter he found that under proper conditions it was possible to synthetize β-methyl-glucosid by ferment action on methyl alcohol in the presence of glucose. A further study of the conditions of this synthetic action of ferments has led to the production of a number of hitherto unknown glucosids, and has opened a new field of investigation.

CAOUTCHOUC. The existence of a ring of eight carbon atoms in ordinary caoutchouc has long been thought probable, but the evidence has been wholly by analogy from physico-chemical methods. It has now been proved by purely chemical methods by Harries, who first regenerates caoutchouc from dichloro-caoutchouc, and then from this regenerated caoutchouc forms the diozonide. This on decomposition gives several compounds, but among them in considerable quantity the already known 1, 5, cyclo-octadione, which contains an eight-carbon ring. Incidentally it appears probable that the union holding the eight-carbon rings in the polymerized molecule of caoutchouc, is different from that usually found in polymers, and cannot be accounted for by the ordinary valence of carbon, since the original material is more or less completely regenerated from its dichloro-derivative, without resolving the components of the polymer.

COLORING MATTERS. The investigation of animal and vegetable coloring matters by Escher and Willstätter has shown that the yellow pigment of the *corpus luteum* is identical with carrotene, the unsaturated hydrocarbon of formula $C_{40}H_{56}$, which is the coloring matter of carrots, and which has been lately proven by spectroscopic methods to be also the coloring substance of wheat flour (and which is destroyed by bleaching with nitric oxide). Carrotene is closely allied to lycopin, the coloring matter of tomatoes, and also to xanthophyll, $C_{40}H_{56}O_2$, a coloring substance in leaves, which the same workers have shown to be identical with lutein, the yellow pigment of the yolks of eggs. The work on the carrotene of the *corpus luteum* necessitated the use of the ovaries of 10,000 cattle, which furnished altogether less than half a gram of the pigment.

CHEMISTRY, BUREAU OF. See FOOD AND NUTRITION.

CHEMISTRY, INDUSTRIAL. (See also CHEMISTRY.) The conspicuous feature in the development of industrial chemistry during the year has been the control of the supply of radium, and happily, in the United States, for philanthropic purposes. Encouraging reports were received as to the general progress of chemical arts at home and abroad. The great activities of the chemical experts of the Department of Agriculture, the United States Geological Survey, and the Bureau of Mines, in searching for new sources of raw materials and in efforts to improve processes were conspicuous. This was notably the case in the Department of Agriculture, where it was reported by Dr. Frank K. Cameron that the kelp sea weed banks along the Pacific Coast would furnish for many years an adequate supply of potash. He says: "The preparation of kelp is becoming a prominent industry on the Pacific Coast. There is a factory at Seattle and one near San Francisco, both of which prepare kelp in a number of ways and sell it directly to farmers within a radius of one hundred miles of their respective factories." The persistent search by the chemists of the same department for a new paper stock was equally conspicuous. In Germany great progress was reported in the manufacture of synthetic indigo, and from Russia came information of the rapid development of the chemical industries. Nearly all the supply of sodium bicarbonate was being manufactured in Russia.

ORGANIZATIONS. The American Chemical Society resumed a practice this year, which it had for some years abandoned, of holding two meetings annually, and in 1913 the first of these was held in Milwaukee, Wis., during March 25-27, while the second was held in Rochester, N. Y., during September 9-12. The total membership in this organization was 6673, making it much the largest chemical society in the world. The president during the year, Arthur D. Little, was succeeded by Theodore W. Richards, of Harvard University.

The Willard Gibbs medal of the Chicago section of this society was presented, on May 16, to Dr. Leo H. Baekeland, in recognition of his contributions to industrial chemistry. With the beginning of 1914 the *American Chemical Journal*, founded in 1876, and edited since its inception by Prof. Ira Remsen of the Johns Hopkins University, will be taken over by the American Chemical Society.

The American Institute of Chemical Engineers held its summer meeting in Boston, Mass., during June 25-28, and its annual meeting in New York City, December 10-13. T. B. Wagner, the president during the year, was succeeded by M. C. Whitaker, of Columbia University.

The Society of Chemical Industry held its 32d annual meeting in the Victoria Buildings in Liverpool, England, during July 16-17, 1913, under the presidency of Prof. Marston T. Bogert, of Columbia University, New York. The secretary reported the membership to be 4244, as compared with 4285 last year. Sir William Crookes was chosen president for the ensuing year, and Nottingham, England, as the place of meeting. The Perkin medal for 1913 was given, on January 24, to James Gayley, for distinguished service in the field of chemical engineering and metallurgy.

The International Association of Chemical Societies met in Brussels, Belgium, during September 19-23, 1913, under the presidency of Sir William Ramsay. Seventeen societies, representing 14 countries and an aggregate of 19,582 members, participated in the proceedings. Ernest Solvay made an unconditional gift of 250,000 francs to the association, and announcement was made that he proposed to found an international institute of chemistry for which he proffered the sum of 1,000,000 francs. Among the topics discussed were the unifications of abbreviations of titles for scientific journals used in chemical memoirs, and a commission was appointed to consider *a*, the publication of an *International Journal of Abstracts* in three languages; *b*, the publication of three editions of an *International Journal of Abstracts*, and *c*, the publication of an *International Journal*, containing translations into either English, French or German, of original papers appearing in the lesser known languages. Commissions were also appointed to report on inorganic nomenclature, organic nomenclature, and on the unification of physico-chemical symbols. A meeting is to be held in Paris, France, in September, 1914, under the presidency of A. Haller.

NITROGEN. It was reported that the General Electric Company had succeeded in making a lamp that yields a light of remarkable brilliancy. In making this lamp the air was first exhausted, leaving a vacuum; nitrogen was then pumped in until it was equal to the atmospheric pressure. When the lamp was burning, nitrogen gas heated to a very high degree issued from the filament and circulated in the globe, rising and falling like a fountain spray. As it circulated the intense heat was rapidly dissipated, and this made it possible to subject the filament to a much higher temperature than was obtained in a vacuum lamp. The lights were of 5000 candle power each, consuming 2500 watts.

A company in Norway succeeded in producing 98 per cent. nitric acid from the 30 per cent. acid it had been making for use in the manufacture of calcium nitrate. The method of manufacturing the concentrated acid was patented, and the acid had been used in manufacturing explosives. Details of the process were withheld, but the raw materials used were water from the Maane River and atmospheric nitrogen.

METALS. *Aluminum.* A new branch of the aluminum industry was the manufacture of the powdered metal known as aluminum-bronze powder and used as a paint pigment, in explosives, in lithographing, and in printing. To make the powder, foil made of the metal only 0.01 mm. thick was cut into squares of 2 mm. on a side and rubbed to a powder. Aluminum foil had partly displaced tin foil for wrapping cheese, chocolate candies, tobacco, etc., and was also being used on electrical condensers. The use of metallic aluminum was being extended to constructing tanks, cooking vats, and vessels for brewers, preserve manufacturers, and in industries where heat conduction, noncorrosion, and a nonpoisonous nature are essential. Expansion in the use of extruded forms and tubing had been great; difficulties had been largely surmounted, and they were turned out with high tensile strength and compact structure. The use of aluminum wire as the conductor in long-distance power-transmission schemes, while not new, was extended, and it was reported that there had been placed on the market a steel-reinforced aluminum cable consisting in all of seven strands. The six outer strands were made of aluminum, and the inner strand was made of steel of high tensile strength. It was claimed for this conductor that it both transmitted the current and had the requisite strength for use in the towers which were rapidly displacing poles in transmission lines.

Experiments made to bring aluminum to a liquid condition so it might be spread when cold over any dry surface had been crowned with success. The composition was applied like paint with a brush and looked, when spread, like a dull silver coating. It was said to be an excellent preventive of rust, to be resistant to heat, elastic, durable, and resistant to atmospheric influences, and to form an excellent substitute for tin in plating. See ALUMINUM.

BARIUM. Until recently barium sulphate served almost exclusively in Germany as raw material for the manufacture of barium oxide, barium hydrate, barium peroxide, and other barium salts. The sulphate was reduced by heating with coal in kilns to the sulphide. From the solutions of the latter barium carbonate was precipitated by the action of carbon dioxide. This carbonate served as the starting point for the preparation of the chloride, the nitrate, the oxide, etc. An important process for the reduction of barium sulphate that promised to simplify materially the manufacture of soluble barium compounds was due to C. A. Beringer, of Charlottenburg. A mixture of barium sulphate (7 parts) and clay (3 parts) was kept for some time at a bright red heat, resulting in the formation of a double silicate of barium and aluminum. This was readily susceptible of decomposition by hydrochloric or nitric acid.

GOLD. In a process for the manufacture of gold leaf recently introduced in England a highly polished aluminum ring about five feet in diameter and five and one-half inches wide was covered with an adhesive substance, such as a solution of gum, and was allowed to dry. The adhesive surface was dusted with metallic powder so that it was covered with a thin layer of base metal. This layer was polished and the ring was rotated slowly with its lower surface in contact with a solution of a nickel salt, the ring being connected with one pole of a battery, while the other pole was immersed in the nickel solution. An electro-desposit of nickel was thus produced on the polished lever of base metal. The nickel deposit was washed and the ring was rotated with its surface in contact with a solution of gold, the electric connections as before, so that the latter metal was plated on the nickel. There were thus four layers on the periphery of the ring, gum, base metal, nickel, and gold, but each layer of metal was so thin that the combination was said to be even thinner than the best gold leaf. To remove the leaf from the aluminum ring a transverse cut was made in the continuous film, and, starting from this cut, the ring was rotated slowly with its lower part immersed in a liquid which dissolved the adhesive substance, when the film fell from it and was received upon a band of paper traveling at the same speed as the periphery of the ring. The film and paper were then cut up and made into books.

Uranium. There was but slight demand for uranium ores in Europe. The whole output of uranium ore throughout the world seldom reaches sixty tons a year. Efforts were made to make use of uranium in the steel industry for hardening purposes, but without success. Its actual commercial use was for the production of pigments for coloring glass and porcelain, and it was chiefly interesting for its content of radium. According to Dr. Krusch, a regular production of uranium can be had only from Joachimsthal, in Austria. The mines there, in a production of twenty years, have furnished a uranium pitch with an average content of fifty-five per cent. uranium oxide. As the production of the ore has decreased rather than increased, an annual production of only 1.8 grams of radium salts of the highest activity can be counted on. Although the Austrian production of radium salts had reached 3.8 grams, this was possible only because of the considerable accumulated stocks of uranium held over from other years.

Vanadium. The use of vanadium steel seems to be extending, perhaps more in the United States than in other countries. The best ores offered for sale in Germany come from the United States, but the importations are slight.

Radium. There was considerable activity in connection with the sources of radium in the United States during the year. The U. S. Bureau of Mines reported that practically every ton of ore mined during 1912 went abroad, and "as the American deposits are far from being inexhaustible we are rapidly depleting our own reserve and are shipping from the country material of very great value and of unknown possibilities which cannot be replaced." American hospitals and physicians were compelled to purchase from abroad such radium as they needed for experimental purposes. While radium had not been proved to be a specific for any disease, the outlook for its future application to certain diseases not easily treated otherwise was decidedly encouraging. In October announcement was made by the Bureau of Mines that Dr. James Douglas of New York City, and Dr. Howard A. Kelly of Baltimore, Md., had furnished the money for the purchase of twenty-seven claims of mining land in Paradox Valley, Colorado, the greatest radium-bearing ore deposit known to science. A national radium institute has been founded to work these deposits under the supervision of the Bureau of Mines by an entirely new method of extracting the radium, which will reduce its cost materially. None of this precious material will be for sale, but all of it will be used in the cause of humanity. Later a European radium company was organized in London with a capital of $3,750,000, for the purpose of controlling the supply abroad and of keeping secret the method of separating radium from barium, which it is claimed will cause a monopoly of the element. The London Radium Institute purchased in October 2000 milligrams of radium, nearly one-third of the output for the year, for $30,000. According to a Russian journal radium ore has been found in large quantities in the Ferghana district of Russian central Asia. See also Chemistry, and Radio-Active Elements.

Metallurgy. Announcement was made that a method had been discovered in Sheffield of producing superior high speed steel by the introduction of cobalt. The new product, it was said, marked a distinct advance on the best qualities of steel now obtainable for boring and cutting tools. Also from Sheffield came the announcement of the invention by William H. Worrall of a process that renders armorplate capable of resisting projectiles of the highest power. This result was obtained by a process of hardening, largely secured by the welding or bonding of four or six sheets of metal into one plate, instead of molding the plate as a whole in one ingot. The main object is to effect a thorough homogeneous hardness. This, it is said, will permit of ironclads being as efficiently protected with much thinner and lighter plates than is at present the case. The production of ferrochrome in Sweden by reducing African ores in an electric furnace was described as new. Two furnaces are now in operation, using 3-phase, 50-cycle current at a voltage varying between 45 and 60. Four grades of metal are being made, containing 5, 6½, 7½, and 9 per cent. of chromium, and the finished product is in demand. See Metallurgy.

Alloys. The properties of German silver were studied by O. F. Hudson, who found that typical microstructures showed that the usual crystalline growth took place on annealing, but it was also observed that the cold-rolled alloy still showed very distinct signs of the original cored structure of the cast material. The "cored" structure was still in evidence after annealing for forty-eight hours at 700° C. After seventy-two hours' annealing at 700° C. the alloy was practically homogeneous, although faint traces of the "cores" were observed even in this sample. The conclusion that the light and dark shading observed on etched surfaces was due to the persistence of the original "cores" of the crystals of the cast alloy was confirmed by experiments with an alloy cast in the laboratory. The alloy was cast in a small strip mold, and the casting, 7/32 inch thick, was rolled, annealed by heating to about 700° C. for a few minutes, and rolled again to give a strip ⅛ inch thick. Portions of the cold-rolled strip were then annealed for varying lengths of time at a temperature of 720° C., and typical structures of annealed specimens showed the persistence of the "cored" structure. Annealing at 720° C. for six hours was quite insufficient to give uniformity of composition, but after fifteen hours at this temperature the alloy was perfectly homogeneous. With regard to the rolling qualities, annealing for ten minutes, 100 minutes, and ten hours at 800°, 850°, and 900° C. in all cases gave specimens that were found to roll easily and well, and the same result was obtained after annealing for half an hour at 950° C. and 1000°C. All these annealings were carried out in air in an electrically heated tube furnace, and a specimen annealed for two hours in an atmosphere of coal gas at 850° C. also rolled perfectly. It appears that a coarse crystalline structure due to prolonged or drastic annealing was in itself no sign of inferior rolling qualities.

Fuel. Hj. von Porat, a Swedish engineer, had perfected a process for utilizing peat powder as fuel for locomotives. He found that the same results could be had from one and one-half tons of peat powder that one ton of coal would produce. Peat powder could be burned with an admixture of about five per cent. of coal. As to firing with peat powder, the work was much easier than firing with coal, as the powder was forced into the furnace by automatic process.

No change had to be made in the boiler and none in the fire box, except installing the special apparatus. There was no difficulty in bringing the powder from the tender to the fire box, as it passed through a conveyance pipe. Another advantage in using peat powder was that no cold air could get into the fire box and neither smoke nor sparks escape from the smokestack.

CELLULOSE FROM ASPARAGUS. The invention of a process for the recovery of cellulose from asparagus waste from canning factories and from asparagus stalks that mature after the edible crop has been gathered, is due to Prof. Otto Reinke. When soup extracts are manufactured from the boiled freshly washed asparagus pulp, it is an easy task to obtain a pure cellulose mass by a chemical method. The supply of the plant that is allowed to grow after the edible stalks have been removed is greater and, after being cut in small pieces like chopped straw, it is treated with sulphurous acid, or with eight to twelve per cent. lye of soda, in steam-tight vessels at four to six atmospheres for one to three hours. The result is a heavy brown solution of cellulosine, the incrusting substance, and of lignin, the albuminous substance, and in addition thoroughly disclosed cellulose in both short and long fibre form, in long drawn cells, and frequently in fine spiral form. According to the cutting by machinery different qualities of cellulose may be manufactured. The result is often a beautiful pure cellulose product, and after the material has been washed and treated with oxidizing and reducing substances, for example, with diluted solutions of permanganate and sulphurous acid, it may be used for bandages, blasting material, paper, tissues, fine felt, cardboard, etc.

CHEAP ALCOHOL. Owing to the increase in the price of gasoline and the threatened further advance, the possibility of using denatured alcohol for automobile power, the United States Department of Agriculture made tests on various materials for the production of denatured alcohol, but the best that was obtained was a cost of not less than thirty-five cents a gallon. This was so much in advance of the current price of gasoline that the advantage of alcohol in efficiency did not cover it. Experiments were made with all sorts of grains, potatoes, and fruits. It was found that potatoes were the best vegetables for producing alcohol, but that, at the current price, corn was less expensive. Experiments were made in using potato culls, but it was found that the supply was limited. The same thing was true of bananas, which were very productive of alcohol, but which would necessitate the manufacture of the alcohol where the bananas grew.

Extensive tests were made by the Bureau of Mines on the relative efficiency of alcohol and gasoline as fuel. It was shown that alcohol can be used in an ordinary gasoline engine if the compression point is raised. The effective pressure for gasoline is ninety pounds to the square inch, and that for alcohol is 180. An interesting announcement concerning the production of industrial alcohol was made by the DuPont Powder Company, which uses a large quantity of alcohol in the manufacture of smokeless powder. This company developed a method of making alcohol from sawdust, reducing the sawdust with acid and then distilling it. It claimed to produce alcohol at from eight to ten cents a gallon.

SYNTHETIC PRODUCTS. The constitution of aniline black was studied by Green of Manchester, who succeeded in making it from aniline by oxidation from the oxygen of the air, using cuprous chloride as a catalyst, thus dispensing with potassium ferrocyanide and sodium chlorate. This discovery, it was expected, would lead to the finding of analogous colors with different bases, produced like aniline black in the fibre.

A successful synthesis of tannin was discovered by Edmund Stiasny of Leeds. This new product, which is called "neradol," is made from tar distillation products, the synthesis being carried out by sulphonating cresylic acid and combining it then with formaldehyde. The white color of the neradol-tanned leather and the brightening and bleaching effect of neradol when used in combination with other tannins (vegetable and chrome) are especially noteworthy. It is probable that this synthetic material may be used in conjunction with both vegetable and chrome tannages, as it considerably hastens the process, and that, contrary to the general effect of quick processes, it improves the quality of the leather at the same time. It was said that it had been already used on a fairly large scale in the German tanning industry.

PAPER. The persistent search for a new material to supply the ever-increasing demand for paper continued to present new substances. Among those mentioned recently was esparto grass, and this material ranked third among the exports from Almeria, which is the centre of the industry in Spain. The paper mills in the vicinity of Edinburgh, Scotland, imported three times as much of this grass, both from Spain and Africa, as they used of rags and wood both combined. From Spanish esparto the yield of paper was fifty-five per cent.; from African about fifty per cent.; and from rags ninety per cent. Sudd, the inexhaustible jungle growth of the upper reaches of the While Nile, which for so long resisted all attempts at complete bleaching, had yielded to the efforts of the chemist, so that a white pulp that could be used for high class paper-making was available. It was anticipated, therefore, that the Sudan might become a great pulp-producing country. From Oregon came the information that pulp made from the lodepole pine, a small black and hitherto useless variety, was of promising quality and therefore might be used for paper-making, thus creating a new and important industry in the West. Elephant grass from Uganda, Africa, which was formerly burned each season to keep it down, was tested at the Imperial Institute in London, and after treatment in the laboratory was found to yield a pulp of good color, composed of fibres rather longer than those of the esparto grass, and about the same length as those of Lamboo pulp. A fairly good paper was obtained from this source. In the United States, cornstalks, pineapple leaves and pulp, and fibrous plants and grasses from the South continued to be experimented on. Thomas Ingham of Liverpool, England, developed a seaweed product which he named "Algin" and used in the manufacture of noninflammable cinematograph films, and of a paper which is claimed to be water, flame, and germ proof, and odorless. The paper being a nonconductor of heat, is recommended for wrapping perishable goods for transport, and for lining refrigerators. See also PAPER.

ARTIFICIAL SILK. The demand for artificial silk continued to increase and there was practically no limit to the amount that could be produced by the three different processes in use. The viscose artificial silk sold at wholesale at from $1.25 to $1.30 a pound, the cupro-ammonium was somewhat higher, while that made by the Lyonnaise Chardonnet process sold at $1.40 to $1.50 a pound. The greatest difficulty militating against the popularity of artificial-silk textiles was the question of the effect of moisture, and where tensile strength and waterproof qualities were essential the use of artificial silk seemed still to fall short of the requirements. Some interesting developments were noticed in the manufacture of velvets of artificial silk. It would seem that a velvet had been produced which presented all the brilliancy and softness of silk velvet. Although the artificial product lacked a certain quality of the real silk, this drawback had been met with an artificial schappe, which, being in short lengths, helped to give the desired real-silk effect.

Two new inventions were brought out in France for the manufacture of artificial silk, one at Rouen and the other at Harfleur, near Havre. The latter, which was being exploited by a French cotton firm, was in the experimental stage. Both of these inventions were based on the use of raw cotton instead of wood pulp, and both claimed to have overcome the difficulty of nonwashing found with the viscose patent. The growth of the use of artificial silk is one of the commercial wonders. From a beginning ten or twelve years ago its consumption had increased, until in the fiscal year 1912-13 it reached some 20,000,000 pounds. In the same period it was estimated that the consumption of real silk in the raw reached 54,000,000 pounds. Artificial silk is now used in the manufacture of sewing and embroidery silks, ribbons, tie, millinery and upholstery silks, curtains, table covers, and rugs. It is also used in combination with real silk for the making of silk shirtings, and is combined further with real silk, wool, and cotton in the manufacture of dress goods. Chardonnet silk is useful for incandescent bodies. It has been found that the cylindrical, continuous, and uniformly thick threads of artificial silk in mantles show a greater facility for the emission of light than the thicker and shorter ones ending in a point.

JUTE SUBSTITUTES. Textilose (see YEAR BOOK for 1912, p. 140) is said to be practically a paper twine coated with mucilage and then drawn through cotton waste, after which it is spun. Commercially textilose appeared to have attracted more expert attention than any other jute substitute yet put forward. Rights for its manufacture were granted by the English patentees to firms in Austria, Belgium, and Spain, in each of which countries plants were said to be in course of erection. Another material called "stranfa," made from straw by an ingenious chemical process, the invention of a German textile expert, was said to be so like jute that only an authority could detect the existence of straw fibre in piece goods made from a mixture of this material and jute. Stranfa was used for making string, cord, and rope, also piece goods and sacking. The process used in its manufacture was tried with other vegetable fibres, such as reed grasses, aloe leaves, etc., and the results were said to be most satisfactory, resulting in the production of strong and serviceable fibres in every instance.

EXPLOSIVES. Darsonvillite was a new explosive that took its name from its inventor. It was a mixture of lampblack and liquid gas, and derived its force from the liquefaction of gases. The claim was made for it that it was ten times more powerful than dynamite, and it had been successfully employed in quarries near Paris. Haynesite, also named for its inventor, was successfully tested near Washington, D. C., before representatives of the U. S. Bureau of Mines. It was described as being more powerful than dynamite, and as it would not freeze, and had no disagreeable odor, its great value for blasting in coal fields was claimed.

COLOR PHOTOGRAPHY. An improved process invented by Vancamps of Paris, that admits of indefinite duplication of colored photographs, is as follows: It begins with an exposure. This is done by electric light—and three negatives are taken—one through a violet screen, a second through a green, and the third through an orange. These three negatives are exactly superposable, and are in black and white; but the lights and shades are differently placed, the plates having been made by different-colored lights. These negatives furnish three positives in color on gelatin paper. Mr. Vancamps has invented a colored gelatin paper—yellow, red, and blue, the complementary colors to those of the screens. The three positives are blue, red, and yellow. The yellow paper is used with the negative taken through the violet screen, the red with that taken through the green screen, and the blue with the product of the orange screen. These positives are made by placing the paper in contact with the negative and exposing it to electric light. This fixes the colored matter in the gelatin where the negative allows it to pass. Washing removes the color that has not been fixed by the light. Thus there are three positives—blue, yellow, and red, in which each color has its own distribution, the relations of light and shade being different. To obtain the totalized positive print, it is necessary to combine the three colored prints. This is done by detaching the gelatin films from the paper and superposing them exactly on another sheet. The gelatin being very thin, and the colors very transparent, the eye sees each of the prints through the others and the effects melt together.

LITERATURE. Worthy of mention is the publication of an *Industrial Chemistry, A Manual for the Student and Manufacturer*, consisting of forty-three chapters, each of which is written by a specialist on a given subject. The work is edited by Allen Rogers and Alfred B. Aubert.

CHESS. International chess in Europe had an off year in 1913, only two important tournaments being held—those at Budapest and Scheveningen. In the first contest R. Spielmann of Munich was the victor, with Dr. S. Tartakower of Vienna second, and in the other match the laurels went to A. Alechine of St. Petersburg, with D. Janowski of Paris as runner-up. In contrast with the lack of activity in European chess circles was the enthusiasm shown in the United States and Cuba. The second international masters' tournament was held in New York City in January, J. R. Capablanca, the Cuban champion, capturing first place and F. J. Marshall, the United States champion, getting the second prize. In the Havana congress which followed in February, Marshall turned the tables on the Cuban player by winning first place, Capablanca finishing second. Another international contest was held in New York City in July and August, Capablanca again gaining the chief honors. O. Duras of Prague, Bohemia, was second, and R. T. Black, a Brooklyn player, third. Marshall established a new record for simultaneous play at Pittsburgh, when he met fifty-seven opponents without being defeated. Dr. E. Lasker, the world's champion, and A. K. Rubenstein, the Russian champion, made arrangements to meet in August, 1914, and settle the question of supremacy. An international tournament to be held in Havana in February, 1914, also was arranged. The attempt to renew the college cable matches for the Rice International Trophy was unsuccessful, but a contest will surely take place in 1914. A noteworthy achievement of 1913 was the establishment of the Metropolitan Chess League, which is to take in clubs in New York City and vicinity. The twenty-first intercollegiate tournament was won for the third successive year by Columbia, Harvard finishing second, and Yale third. The Triangular College League matches were won by Pennsylvania, with Cornell second.

CHESTNUT BLIGHT. See BOTANY under *Plant Diseases.*

CHICAGO, UNIVERSITY OF. A university for higher education, founded in Chicago, Ill., in 1892. The number of students enrolled in the autumn quarter of 1913 was 3719. The faculty numbered 337. There were no changes of special moment in the faculty during the year 1912-13. Following are the principal gifts which were received in the university during the year: Martin A. Ryerson, president of the board of trustees, built and equipped as an addition to the Ryerson laboratory which he had formerly given, a new building at the cost of $191,000; Mr. La Verne W. Noyes gave the university $300,000 for the erection of a building for women in memory of his wife, Mrs. Ida Noyes. The productive funds of the university amount to about $18,000,000, and the income from all sources to $1,617,000. In the library are about 410,000 bound volumes and 200,000 pamphlets. The president is Harry Pratt Judson.

CHICAGO OPERA COMPANY. See MUSIC.

CHICAGO RAPID TRANSIT. See RAPID TRANSIT.

CHILD LABOR CONFERENCE, NATIONAL. The ninth annual conference of the national child labor committee was held at Jacksonville, Fla., in the early spring. Many phases of the child labor problem were discussed, including the following: School support of the child; widows' pensions; family relief by charitable societies finding work for the children; economic waste and inexpediency of child labor; comparison of mill-town and mountain-home advantages for Southern white children; industrial welfare work; child labor as a cause of poverty; child labor and health; evils of the night-messenger service; coöperation of all civic organizations in the support of the child-labor reform movement. Some prevailing opinions were: That greater support of the child by the school would result in a further decrease of parental responsibility and is therefore highly dangerous; that a carefully guarded mothers' pension plan, properly related to minimum wage and workmen's compensation laws, and administered in a spirit of justice rather than charity, may be approved; that families should not be relieved by putting the children to work; that child labor is not an advantage in interstate competition; that child labor is more often a cause than an effect of poverty; and that coöperation of all organizations, including manufacturers' associations, is needed to stamp out the still great amount of child labor.

The INTERNATIONAL CONFERENCE ON CHILD LABOR in September in Switzerland was called by a commission of the International Association of Labor Legislation. The minimum standards there agreed upon include a fourteen-year age limit for industrial establishments; an absolute prohibition for children under twelve and for those not exempt from school attendance; prohibition of all street-trading and employment in hotels and theatres; and medical examination. It was recommended that the age of compulsory school attendance be advanced to fourteen; that an investigation be made of the contract work of Italian children in France and Germany; that minimum-wage boards for home industries be established; that, where the advance of legislation imposes burdens on poor parents, aid be given by state and local authorities by free tuition, midday meals, clothing, and even money.

LEGISLATION. In addition to the information contained in this paragraph the reader should consult the articles on MINIMUM WAGE, PENSIONS FOR MOTHERS, WOMEN IN INDUSTRY, as well as the general article on LABOR LEGISLATION.

During the year 31 States altogether enacted laws affecting the labor of children. These laws were all steps in advance in their respective States and took the form of raising age limits, shortening hours, restricting night work, prohibiting dangerous and immoral trades to children, regulating messenger and other street trades, and prescribing increased education. The Massachusetts legislature authorized the Boston school committee to establish and regulate a free employment office for minors. Attendance upon continuation schools was required under certain conditions in Indiana, Massachusetts, New York, Ohio, and Wisconsin. This was probably the most striking feature of the year's legislation. Such laws are applicable only where continuation schools are maintained. In Indiana the local board may require attendance for 5 hours weekly for children of ages 14 to 16. In Massachusetts illiterate minors, ages 16 to 21, must attend the evening schools during the full term; and the school authorities may require the attendance of children of ages 14 to 16 for 4 hours per week. In New York attendance may be required for similar persons from 4 to 8 hours per week for 36 weeks. In Ohio attendance may be required for 8 hours per week. In all these cases, except, of course, the Massachusetts evening schools, this attendance must be in the day time. In Wisconsin the child labor laws were for the most part repealed, and a general act substituted. The industrial commission is given power to determine reasonable classifications of employment and enforce the general principles laid down in the statute. Pending findings by this commission minors under 21 may not be night messengers; girls under 18 may not be messengers, and minors under 18 may not work in blast furnaces, docks, emory polishing or buffing, elevators, explosives, matches, mines or quarries, or among dangerous machinery in motion; children under 16 may not work in cracker machinery, laundries, liquor or tobacco manufacture or sale, paints and poisons, printing or drill presses, stamping machines, theatres, and concert halls; no female may be employed where she must remain standing constantly. No child may be employed more than 48 hours a week, including 4 hours at continuation school, nor between 6 P.M. and 7 A.M. Attendance on a continuation school between ages 14 and 16 is required for from 5 hours a week for 6 months to 4 hours a week for 8 months. Various regulations for the issuance of permits for paper boys, boot blacks, and other street traders are included. These general regulations of the Wisconsin law reflect a high standard of modern child labor legislation. See, also, FACTORY INVESTIGATING COMMISSION.

CHILDREN, ILLITERACY OF. See ILLITERACY.

CHILDREN'S COURT. See JUVENILE COURT.

CHILD WELFARE. See EDUCATION.

CHILE. A South American republic, on the Pacific coast. The capital is Santiago.

AREA AND POPULATION. The area, in square kilometers, as officially stated, and the population, as calculated for December 31, 1910, with density per square kilometer, are shown below by provinces (in the last column is shown the percentage of cultivated area):

	Sq. km.	Pop.	Dens.	Cult.
Tacna	23,958	42,925	1.8	0.15
Tarapacá	46,957	115,940	2.5	....
Antofagasta	120,718	118,718	1.0	....
Atacama	79,585	65,118	0.8	0.26
Caquimbo	34,862	178,731	5.0	1.53
Aconcagua	14,210	132,730	9.0	3.97
Valparaíso	5,059	299,466	60.0	6.98
Santiago	14,672	546,599	37.0	7.31
O'Higgins	6,066	94,257	16.0	13.04
Colchagua	9,987	159,421	16.0	11.37
Curicó	7,714	108,120	14.0	8.23
Talca	9,948	132,730	15.0	6.86
Linares	10,210	111,773	11.0	8.11
Maule	6,410	115,568	17.0	6.33
Nuble	8,823	168,858	19.0	10.71
Concepción	8,422	225,054	24.0	6.14
Arauco	6,366	62,259	10.0	3.28
Bío-Bío	13,587	100,495	7.0	5.24
Malleco	7,701	113,020	16.0	16.03
Cautín	15,105	161,935	10.0	3.90
Valdivia	21,637	131,751	6.0	1.44
Llanquihue	91,676	113,285	1.2	0.61
Chiloé	22,255	91,657	4.0	0.33
Magallanes (ter.)	171,438	23,650	0.1	0.01
Total	*757,366	3,415,060	4.5	1.62

* 292,419 square miles.

The population of the larger cities was returned by the 1907 census as follows: Santiago, 332,724; Valparaiso, 162,447; Concepción, 55,330; Iquique, 40,171; Talca, 38,040; Chillán, 34,269; Antofagasta, 32,496; Viña del Mar, 26,262; Curicó, 17,573; Temuco, 16,037; Serena, 15,996; Talcahuano, 15,561; Valdivia, 15,229; Punta Arenas (the southernmost town in the world), 12,199. Marriages as reported for 1911 and 1912 numbered 19,184 and 21,298; births, 133,468 and 135,255; deaths, 107,837 and 104,295; still-births, 3611 and 3592; excess of births, 25,631 and 30,960. Immigration declined from 6024 in 1908 to 3098 in 1909, 2543 in 1910, and 1711 in 1911.

EDUCATION. Primary instruction is gratuitous, but not compulsory. At the end of 1911 public primary schools numbered 2896, with 4829 teachers, 315,274 pupils enrolled, and an average attendance of 58.76 per cent. Private schools receiving state aid had an enrollment of 52,315, and those receiving no state assistance had over 30,000 pupils. For secondary and higher instruction there were in 1911 41 lyceums for boys (enrollment 12,052), 36 lyceums for girls (3277), 16 normal schools (3396), a considerable number of special and technical schools, the University of Chile (2002), and the Catholic University (683). The national library contains over 135,000 volumes. The State religion is Roman Catholicism, but religious toleration prevails.

AGRICULTURE. In the year 1911-12 there were under cultivation 1,233,663 hectares, or 1.62 per cent. of the total area of the country. For the percentage by provinces, see the last column of the table in the section *Area and Population.* Of the total cultivated area, 584,264 hectares, or 47.4 per cent. were under cereals. The area under important crops and the yield were as follows in the year 1911-12: Wheat, 444,870 hectares, 6,150,231 metric quintals; barley, 41,876 ha., 707,862 qs.; oats, 27,972 ha., 490,651 qs.; corn, 22,766 ha., 387,774 qs.; kidney beans, 36,559 ha., 454,262 qs.; vetches, 9183 ha., 126,956 qs.; chick peas, 1851 ha., 10,334 qs.; potatoes, 26,672 ha., 2,627,954 qs.; alfalfa, 3,326,691 qs.; tobacco, 1003 ha., 23,031 qs.; vines, 56,781 ha., 19,643,799 decaliters of wine, and 176,334 of spirits. The area under wheat and the production have been as follows: 1907-8, 462,470 ha., 5,162,035 qs.; 1908-9, 447,820 ha., 4,828,822 qs.; 1909-10, 340,898 ha., 5,373,281 qs.; 1910-11, 392,775 ha., 4,960,216 qs.; 1911-12, 444,870 ha., 6,150,231 qs. (13.82 qs. per hectare). The pastoral industry is developing, especially sheep-raising in the south. Livestock in 1912 were as follows: Horses, 380,786; mules, 36,834; asses, 33,492; cattle, 1,760,272; sheep, 4,168,572; cabrios, 273,218; swine, 165,673. The wool production in the year 1911-12 was 92,493 metric quintals, of which 57,035 were credited to Magallanes territory.

MINING. Chile is exceptionally rich in mineral resources, to which its prosperity is largely due. Formerly the country was famous for its copper production; there was a decline, but in recent years the copper output has increased. The copper export in 1911 was 653,687 quintals and in 1912, 823,970 quintals. Large deposits of iron ore exist. Iodine and calcium borate are important products of the northern provinces of Antofagasta and Tarapacá, which are more notable for the production of sodium nitrate. The greater part of Chile's exportation consists of sodium nitrate, amounting to 53,250,327 Spanish quintals (of 46.09 kilos each) in 1911 and 54,199,439 in 1912.

MANUFACTURES. The number of industrial establishments, as officially reported for 1911, was 5722, with a capital of 471,287,333 pesos. These industries employed 74,618 persons (51,524 men, 17,037 women, 6057 children), whose wages in 1911 amounted to 73,064,668 pesos. The raw materials used in 1911 amounted to 300,727,098 pesos, and the annual product 535,037,093 pesos. The principal industrial centres are Valparaiso and Santiago, the latter having 1131 establishments capitalized at over 138,000,000 pesos.

COMMERCE. In the special trade, imports and exports have been as follows, in thousands of pesos gold:

	1908	1909	1910	1911	1912
Imports...	267,264	262,083	297,486	348,990	334,455
Exports...	319,149	306,430	317,213	330,621	377,105

The leading imports include cotton and woolen goods, iron and steel manufactures, and coal. Principal exports, special trade, in 1911 and 1912 respectively, in thousands of pesos: Sodium nitrate, 262,649 and 292,327; copper, 18,687 and 30,777; wool, 7696 and 8367; calcium borate, 6231 and 6145; iodine, 5140 and 5385; hides and leather, 8983 and 5330; meat, 3769 and 3249; oats, 1590 and 2363; wheat, 1384 and 2124; beans, 1834 and 2124; bran, 1150 and 1286; nuts, 1858 and 1248; barley, 1853 and 1053; flour, 827 and 795; whale oil, 1164 and 766. Exportation by classes in 1911 and 1912: Animal products, 21,010,053 pesos and 20,769,760 pesos; vegetable products, 14,470,375 and 19,835,763; mineral products, 294,474,679 and 336,067,787; beverages, 210,214 and 172,768; specie, 6000 in 1911; miscellaneous, 449,838 and 258,452; total, 330,621,159 and 377,104,530.

Imports and exports by principal countries, in thousands of pesos:

	Imports		Exports	
	1911	1912	1911	1912
U. Kingdom....	111,768	105,751	145,913	150,966
Germany	89,579	90,329	71,780	76,879
United States...	43,222	46,045	53,577	67,163
France	18,991	19,893	16,069	21,010
Peru	20,344	13,198	1,074	2,502
Argentina	21,410	11,238	3,284	3,098
British India...	6,105	9,144	......	......
Belgium	10,567	8,555	9,532	12,633
Australia	6,056	8,273	63	351
Italy	8,681	8,246	979	1,089
Brazil	1,710	2,356	428	4,742
Uruguay	1,453	1,521	3,348	7,446
Ecuador	1,235	1,076	68	103
Total, including other...	348,990	334,455	330,621	377,105

COMMUNICATIONS. Railways in operation in 1912, 5945 kilometers, of which 2831 kilometers were government line and 3114 kilometers private line; under construction, 2573 kilometers. State railway in operation at the end of 1912 was reported to have reached a length of 3125 kilometers. Construction continued in 1913, especially on the Longitudinal Railway. The northern, or Pueblo Fondido-Pintados, section of the Longitudinal Railway, 440 miles in length, was completed, while the Santiago-Copiapo line was also opened. In the south the railway was also connected to Puerto Montt. The Chilean Northern Railway opened 154 miles on its line from Pizagua to Lagunas, while progress was made with the Monte Aguila being built through Decheche Pass to connect with the Argentine system. The Arica-La Paz line was opened.

Telegraph wire (1910), 36,024 kilometers, with 352 offices. Four wireless stations are reported, and in addition 9 on board vessels. Post offices, about 1100.

FINANCE. The monetary unit is the peso, worth 36.5 cents. The value of the paper peso is about 22.3 cents. Revenue (including extraordinary revenue) has been as follows: In 1907, 96,586,766 pesos paper and 98,391,310 pesos paper; in 1908, 72,447,363 and 165,409,348; in 1909, 73,729,045 and 145,617,609; in 1910, 82,764,423 and 169,070,342; in 1911, 71,938,379 and 213,214,929. Expenditure for the same years: In 1907, 31,134,446 pesos gold and 180,640,337 pesos paper; in 1908, 39,102,517 and 197,719,009; in 1909, 44,736,791 and 199,209,099; in 1910, 60,677,704 and 234,143,253; in 1911, 60,775,635 and 234,191,707. Reduced to gold value, the foregoing figures are as follows, in thousands of pesos:

	1907	1908	1909	1910	1911
Revenue....	162,531	160,895	160,946	184,028	197,794
Exp'diture..	152,204	139,272	164,052	200,917	199,014

The chief sources of revenue are nitrate export duties, import duties, and state railways. The budget for 1912 showed a total estimated expenditure of 81,070,863 pesos gold and 280,909,113 pesos paper. As reported for 1913, the budget showed estimated expenditure by departments as follows: Interior, 513,400 pesos gold and 37,354,560 pesos paper; foreign affairs, 1,396,697 and 354,416; worship, 2,329,551 paper; colonization, 60,000 and 1,947,680; justice, 10,721,766; public instruction, 391,520 and 37,766,112; finance, 37,809,710 and 15,373,983; war, 497,426 and 35,729,732; marine, 497,426 and 35,729,732; industry and public works, 9,428,371 and 18,095,755; railways, 1,900,500 and 74,068,885; total, 52,732,120 and 257,916,147.

Public debt, December 31, 1912: Foreign, 459,970,133 pesos gold; internal, 5,916,700 gold and 181,203,570 paper.

ARMY. The legislation of 1912 provided for the establishment of an active army, placed its strength at about 800 officers and 17,860 of other ranks, including a permanent organization of 8044 men and 5871 in the navy. The annual contingent of recruits was 9860 for the army and 709 for the navy, the number of recruits actually called to the colors in 1913 being 9000. In addition there was maintained a force of coast artillery of 1500 men, which in 1913 it was decided to turn over to the navy, and a gendarmerie of 1734 men. There were 900 officers on reserve and in active service six major-generals, ten brigadier-generals, 24 colonels, 45 lieutenant-colonels, 90 majors, 200 captains, 250 lieutenants and 165 sub-lieutenants. The army, which is organized in four provinces consisting each of two brigades of infantry, one regiment of artillery, one machine gun detachment, one battalion of engineers, a detachment of train and railway troops, had an effective strength of about 400 men on a peace basis.

NAVY. The navy in 1913 included: Two battleships, aggregating 15,600 tons (*Capitán Prat*, built in 1892, and *O'Higgins*, 1897); one armored cruiser, 7000 tons (*Esmeralda*, 1896); four protected cruisers, 14,500 tons (built between 1890 and 1899); two torpedo cruisers, 1470 tons; seven torpedo-boat destroyers, 2270 tons; five first-class torpedo boats, 728 tons, and several auxiliary vessels, transports, etc. In September, 1911, contracts were let for six destroyers; the first was launched in September, 1912, and ran trials successfully in the summer of 1913. Two dreadnoughts of 28,600 tons each and a main battery of ten 14-inch guns were under construction at Elswick in 1913. The first, the *Almirante Latorre*, was laid down in December, 1911, and the second, the *Almirante Cochrane*, in January, 1913.

GOVERNMENT. The legislative power is vested in a congress of two houses, the Senate (36 members, elected for six years) and the Chamber of Deputies (118 members, elected for three years). The preisdent is elected by indirect vote for five years and is assisted by a council of State and a responsible ministry. The president in 1913 was Ramón Barros Luco, inaugurated December 23, 1910. Ministry, formed in January, 1913: Premier and minister of the interior, Guillermo Barros; foreign affairs, Enrique Villegas; justice, Anibal Letelier; finance, Manuel Rivas; war, Jorge Matte; industry, Oscar Viel. Ministry formed June 17, 1913: Premier and minister of the interior, Manuel Rivas; foreign affairs, worship and colonization, Enrique Villegas; justice and public instruction, F. Paredes; finance, A. Allesandri; war and marine, J. Matte; industry and public works, Enrique Zañartu. In December a new ministry was formed as follows: Interior, Rafael Orrego; foreign affairs, Enrique Villegas; justice, Enrique Rodriguez; finance, Ricardo Salas Edwards; industry, Enrique Zañartu; war, Ramón Corvalán Melgarejo.

HISTORY. A revision of the foreign policy of the Barros ministry was expected after the dismissal in January of Señores Huneeus and Vicuña, respectively ministers of foreign relations and of war; nevertheless no important innovations were immediately discernible. Later on, when President Ramón Barros Luco delivered his message to Congress on June 1, the government seemed to be concerned primarily with questions of railway construction, water supply, nitrate exploitation, commercial enterprise, and finance. According to the statement of the minister of finance, the four-million-dollar deficit from 1912 was to be carried forward to 1914, when it would be covered by a surplus resulting from new beer and inheritance taxes. In its endeavors to stimulate commerce and industry, the government was very active. The department of foreign affairs established a consulting commercial commission to study commercial treaties and to discover what revisions would be desirable. The first Chilean Congress of Industries and Commerce met in Santiago on October 7. In the nitrate industry the authorities showed themselves anxious to promote nationalization, and the Nitrate Council in November resolved to give preference to Chilean purchasers in the sale of nitrate lands. A bill was introduced in Congress to create a ministry of agriculture. In another field of endeavor, in the creation of adequate supplies of potable water for Chilean cities, the government made considerable advance, building numerous and extensive reservoirs, aqueducts, and dams. No less important was the improvement of the means of communication. It was announced in the spring that in addition to the three wireless stations already in operation on the coast, the government would establish six others. On November 6, the rails of the great Longitudinal Railway from Iquique to Puerto Montt were joined; the line will eventually extend from Peru to the straits of Magellan.

Industrial conditions were characterized by an increasing unrest which culminated in a general strike. The trouble began early in November with the refusal of the shunters and pointsmen of the state railways to be photographed for identification, and rapidly developed into a critical situation in spite of the visit of a labor deputation to the president of the republic. The demands of the strikers included the establishment of an eight-hour working day, the recognition of employers' liability for accidents, the establishment of Sunday as a day of obligatory rest, and the redemption of the paper currency at par. In explanation of this last demand, it may be noted that the legal tender peso was worth only 20½ cents in 1913, less than two-thirds of its face value and the government employes who received their wages in legal tender were therefore anxious to increase the value of legal tender by having it redeemable at par. Further indications of the discontent of the workmen were to be found in frequent demands for social legislation, and especially for workingmen's insurance laws. Moreover, the Socialist propaganda met with marked success; according to the first annual report of the Chilean Socialist party, the tri-weekly Socialist organ had increased its circulation from 1200 to 3500 within less than a year.

The completion of the branch railway from Arica on the Chilean coast into Bolivia—the railway has already been mentioned under BOLIVIA, *History*,—was significant for the foreign policy of Chile. The railway will be in Chilean control for 15 years, and, it is darkly hinted, might allow Chile to pour troops into the heart of Bolivia in case of war. The tendency was actually conciliatory, however. Chile declared Arica a free port thereby allowing Bolivian commerce a free outlet through Arica; and there was even talk of selling Arica to Bolivia and thus ending the long dispute between Chile and Peru, a dispute which has lasted ever since 1879-83, when Chile took Tacna and Arica from Peru. The latest phase of the quarrel concerned the papal representative in Chile, Monsignor Sibilia, who was bitterly criticized for having sustained the claims of the Peruvian archbishop of Arequipa to ecclesiastical jurisdiction over Tacna and Arica. This ecclesiastical jurisdiction was felt to be too strongly reminiscent of Peruvian political dominion over the disputed district. Severe press comments were frequent, and excited mass-meetings in Valparaiso and other cities protested against Monsignor Sibilia's policy. Monsignor Sibilia, it is interesting to note, had already aroused considerable antagonism by his intention, real or imaginary, to liquidate the property of the monasteries and religious bodies in Chile, and to send the proceeds, several millions, to Rome.

Late in November Col. Roosevelt, ex-President of the United States, visited Chile and was warmly received by the authorities, although there were demonstrations of a lingering resentment felt by nationalist elements against the Pan-American and Panama policies of the United States. Col. Roosevelt, in his speeches, spoke of Chile as a co-guarantor of the Monroe Doctrine.

CHIMNEY. What was believed to be the tallest steel stack in the world was under construction during 1913 at the new works of the United Verde Copper Company, at Jerome, Arizona. This chimney is 400 feet 1 inch in height from the top of the foundation to the top of the steel and has a lining 30 feet 9½ inches in diameter inside of the steel shell. The brick lining is supported on the legs of the circular angles which are riveted to the inside of the shell and spaced 15 feet apart so that the weight of brick is carried directly by the entire structure and not merely by the lining itself. Furthermore, any section can be removed at once. There are connections for three flues and the steel plate is protected from the flue gases. The total weight of the chimney is about 875,000 pounds, and it was founded on a concrete base.

CHINA. The Chinese Republic, succeeding the Chinese Empire, dates from January 12, 1912. The capital is Peking.

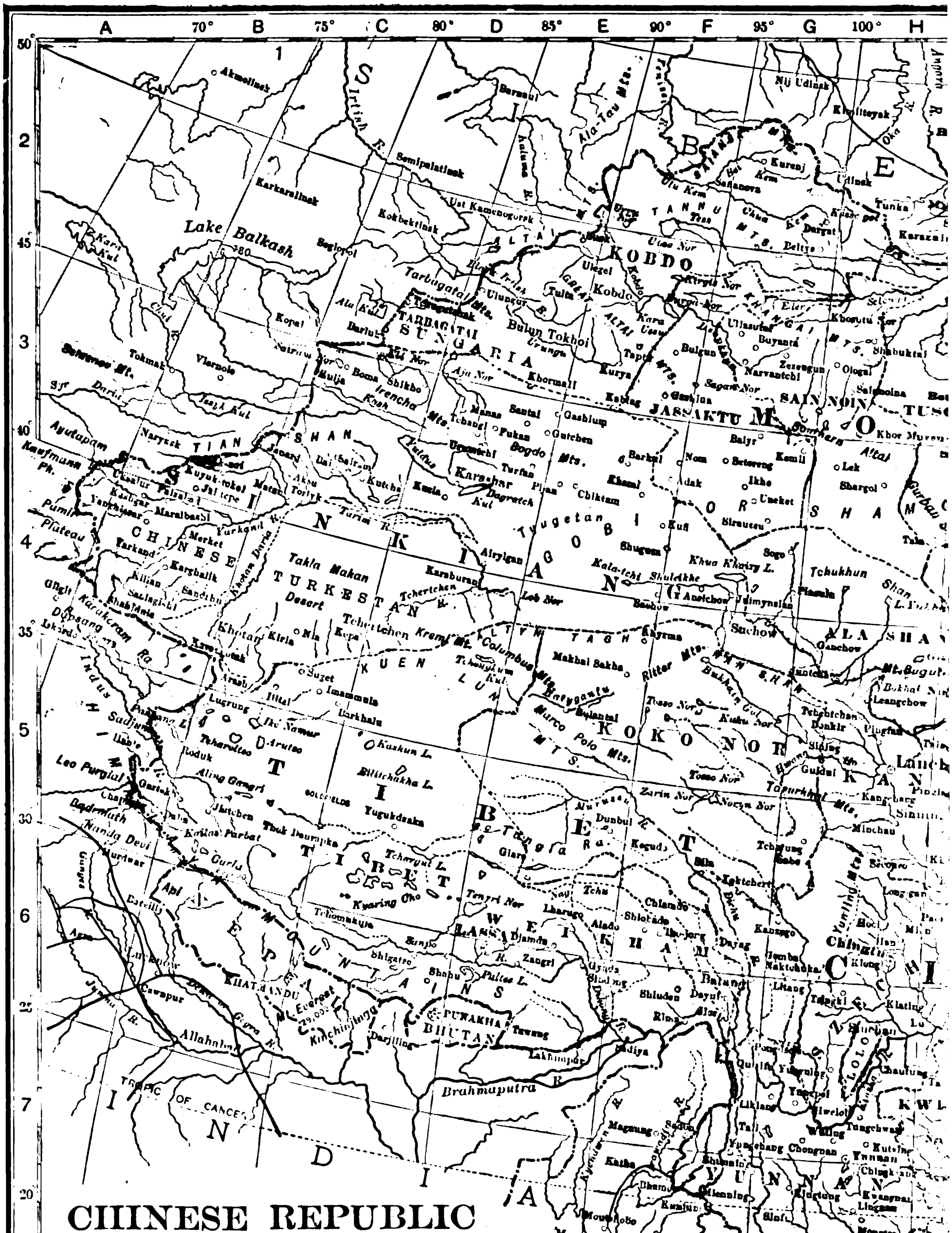
AREA AND POPULATION. The country consists of the following divisions: China proper, or "the eighteen provinces"; the three provinces comprising Manchuria; Sinkiang province (which includes East Turkestan); and the dependencies of Tibet and Mongolia. The autonomy of Outer Mongolia was recognized by the Chinese government in 1913. The total estimated area is 4,278,143 square miles. The number of inhabitants is unknown, but the traditional figure of 400,000,000 for China proper is doubtless too high. Of China proper there have been many censuses or government estimates; the results of some of these are: 1761, 190,257,000; 1812, 360,440,000; 1842, 413,021,000; 1860, 260,925,000; 1882, 381,309,000; 1885, 377,636,000. The immense variations in these figures make it impossible to rely upon any of them as even approximately accurate. The Chinese census is an enumeration of households, whence the number of individuals is computed by multiplying by the average number in a household (exclusive of children under six years of age). For the census taken in 1910, averages varied in different provinces from 3.1 to 5.8 per household. In some provinces the average was not ascertained, or at least not published, and for these the mean of the ascertained average, namely, 4.8, has been used in calculating the population. The unsatisfactory character of the census is further emphasized by the fact that returns from Shansi and Szechwan were incomplete. For the latter province, the figure given below is not deduced from the census, but is the number reported by the viceroy to the government at Peking; judged from the partial returns of the census, the figure is plausible. Although the new information furnished by the 1910 census is insufficient for definite conclusions, it tends to confirm the opinion that the popuatilon of China, though undoubtedly enormous, is much smaller than has been generally supposed. But the estimates of the Maritime Customs conform to the higher figures. The extraordinary total for China proper and Manchuria of nearly 438,000,000, published in 1912, has little acceptance. In respect of more than half of the provinces, they are regarded as gross exaggerations by the best informed students of Chinese population; they are based on no known authority and, in any serious attempt to deduce an approximate total, are negligible factors.

	Sq. m.	Census '10	M. C. est.
Anhwei	54,826	14,077,683	36,000,000
Chekiang	36,680	13,924,655	11,800,000
Chihli	115,830	22,970,654	29,400,000
Fukien	46,332	8,555,678	20,000,000
Honan	67,954	22,375,516	*
Hunan	83,398	20,583,187	22,000,000
Hupeh	71,428	21,256,144	34,000,000
Kansu	125,483	3,807,883	*
Kiangsi	69,498	16,254,374	24,534,000
Kiangsu	38,610	15,379,042	23,980,000
Kwangsu	77,220	5,426,356	8,000,000
Kwangtung	99,970	23,696,366	32,000,000
Kweichow	67,182	9,266,914	*
Shansi	81,853	9,422,871	*
Shantung	55,984	25,813,685	38,000,000
Shensi	75,290	6,726,064	*
Szechwan	218,533	54,505,600	78,711,000
Yünnan	146,718	8,049,672	7,571,000
China proper	1,532,789	†302,111,334	420,996,000
Heilungkiang	202,708	1,562,254	....
Kirin	105,019	5,349,287	....
Shengking	54,761	5,830,819	....
Manchuria	362,483	†12,742,360	17,000,000
Sinkiang	550,579	†1,768,560	
Tibetan Marches (of Szechwan and Yünnan)	......	195,496	
Children under six years (est.)	......	9,000,000	
Total provinces	2,445,851	325,817,750	
Mongolia	1,076,292	1,800,000 (?)	
Tibet ‡	756,000	2,000,000 (?)	
Grand total	4,278,143	329,617,750	

* Honan, Kansu, Kweichow, Shansi, and Shensi, 55,000,000. † Not including children under six years. ‡ Including Koko-Nor and Tsaidam.

The population of the city of Peking is calculated on the basis of the 1910 census at 805,110, but a later estimate gives a considerably higher figure. The old city of Sianfu, capital of Shensi, has long been supposed to have about 1,000,000 inhabitants, but this number is probably excessive. For the treaty ports, the Maritime Customs' estimates probably represent the actual population more accurately than they do for the provinces; these estimates for the larger treaty ports, as published in 1912, are: Canton, 900,000; Hankow, 826,000; Tientsin, 800,000; Shanghai, 651,000; Foochow, 624,000; Chungking, 598,000; Soochow, 500,000; Ningpo, 350,000; Hangchow, 350,000; Nanking, 267,000; Changsha, 250,0000; Chinkiang, 184,000; Antung, 161,000; Wuhu, 122,000; Amoy, 114,000; Wenchow, 100,000; Shasi, 90,000; Swatow, 66,000; Kongmoon, 62,000; Newchwang, 61,000; Wuchow, 59,000. The number of foreigners living in the treaty ports in 1911, as estimated by the Maritime Customs, was 153,522, of whom 78,306 Japanese, 51,221 Russian, 10,256 British, 3470 American, 3224 Portuguese, 2758 German, and 1925 French.

EDUCATION. The ancient system of Chinese education, which was almost limited to the study of Chinese classical literature, was officially superseded in virtue of the decree of September 3, 1905. This decree abolished the system of examination in the classics as a requisite for public office. Immediately modern subjects and methods were introduced in many towns and cities, and the "western learning" has made rapid progress. This system of public education is based upon that of Japan. Exact statistical data are not available, but it is estimated that there are about 36,000 schools, with a total enrollment of some 880,000 pupils. In addition to the public schools, many of the old-style schools remain, so that the traditional type of education is still obtainable for those who desire it. There are also numerous private schools and Protestant and Roman Catholic mission schools and colleges. At Peking is the Imperial University, a government institution, with Chinese, Japanese, and European teachers. Peking has also a medical college, and Tientsin a university. Colleges have been established in most

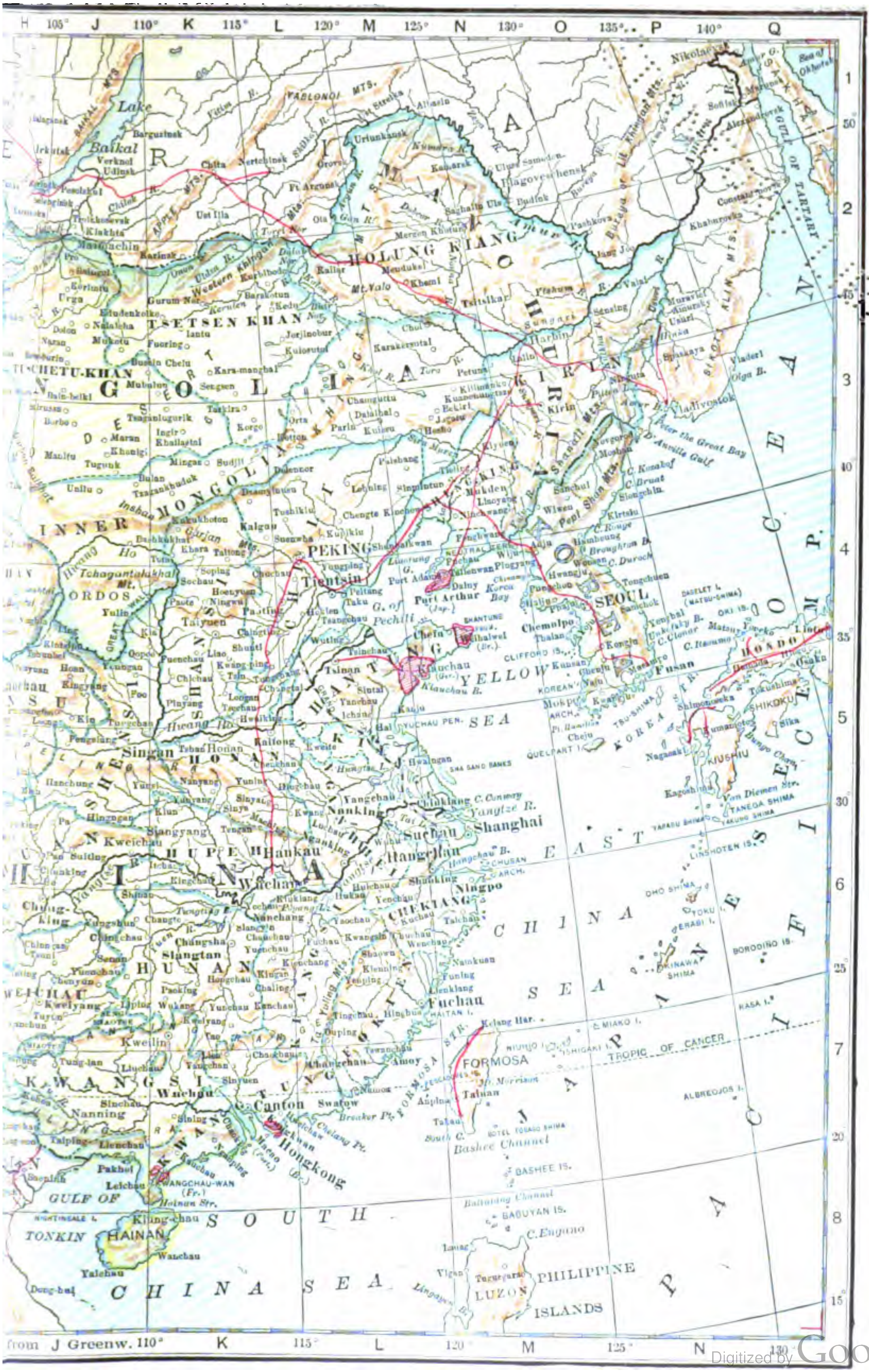


CHINESE REPUBLIC
AND
KOREA
(CHOSEN)

SCALE OF STATUTE MILES
0 100 200 300 400 500 600 700

SCALE OF KILOMETERS
0 200 400 600 800 1000

Important towns are shown in heavy face type
Capital of Country ⊛ *Capital of Province* ⊙
Treaty Ports **Swatow** *Railroads*
Submarine Cables

H 105° J 110° K 115° L 120° M 125° N 130° O 135° P 140° Q
from J Greenw. 110° K 115° L 120° M 125° N 130°
1 2 3 4 5 6 7 8
50 45 40 35 30 25 20 15
Sea of Okhotsk
Nikolaevsk
Lake Baikal
Irkutsk
Barguzinsk
Verkhneudinsk
Chita
Nertchinsk
Yablonoi Mts.
Albasin
Blagoveshchensk
Khabarovsk
Gulf of Tartary
Sikhota Alin Mts.
Kiakhta
Maimachin
Urga
Holung Kiang
Tsitsikar
Harbin
Kirin
Vladivostok
Peter the Great Bay
Olga B.
Tsetsen Khan
Tushetu-Khan
Mongolia
Gobi Desert
Inner Mongolia
Kalgan
Peking
Tientsin
Ordos
Shansi
Taiyuen
Chili
G. of Pechili
Port Arthur (Jap.)
Dalny
Shantung
Weihaiwei (Br.)
Kiauchau (Ger.)
Kiauchau B.
Tsinan
Moukden
Shengking
Manchuria
Korea
Seoul
Chemulpo
Fusan
Yellow Sea
Korea Str.
Quelpart I.
Tsu-Shima
Sea of Japan
Hondo
Osaka
Shikoku
Kiushiu
Nagasaki
Kagoshima
Van Diemen Str.
Tanega Shima
Yakuno Shima
Linshoten Is.
Oho Shima
Okinawa Shima
Borodino Is.
East China Sea
Honan
Kaifong
Singan
Shensi
Hupe
Hankau
Wuchang
Nanking
Shanghai
Suchau
Hangchau
Ningpo
Chekiang
Chusan Arch.
Yangtze R.
Hunan
Changsha
Siangtan
Kiangsi
Fokien
Fuchau
Amoy
Formosa
Kelung Har.
Tainan
Formosa Str.
Pescadores
Tropic of Cancer
Kwangtung
Canton
Hongkong (Br.)
Macao (Port.)
Swatow
Kwangsi
Nanning
Kweilin
Kweichau
Kwangchau-wan (Fr.)
Hainan Str.
Hainan
Kiung-chau
Gulf of Tonkin
South China Sea
Bashee Channel
Bashee Is.
Balintang Channel
Babuyan Is.
C. Engano
Luzon
Philippine Islands
Lingayen B.
Pacific Ocean

of the provincial capitals, and secondary schools and various special schools, as mechanical, agricultural, and military, are springing up throughout China proper. The general educational interest is stimulated by translations of foreign standard works, for which there is great demand. Chinese newspapers, like the schools, are increasing rapidly. Probably the most needed reform at present is some practicable system for romanizing the Chinese characters.

INDUSTRIES. China proper, together with southern and middle Manchuria, is distinctively an agricultural country. Holdings are small, cultivation is intensive, and irrigation is common, but in general the implements used are primitive. Throughout the country many kinds of fruit are produced. The principal crops include wheat, barley, corn, millet, beans, and peas, in the north; in the south, rice, cotton, and sugar. Tea and silk cocoons are products of extreme importance, the former in the west and south, the latter in each of the eighteen provinces. The tea industry has tended in recent years to recover some of the importance it lost through the competition of Ceylon and Indian teas. Silk culture, though at present not regarded as prosperous, is more important than that of tea, and China continues to supply over one-fourth of the world's demand for the raw product. China itself has a large manufacture of silk fabrics, but it is feared that, unless certain defects are remedied, Chinese pongees will have to yield place in European markets to much inferior imitation makes. Cotton manufacture, carried on largely at Shanghai, has developed considerable proportions. Thirty-three mills were reported at the end of 1910, with an annual output of 272,000,000 lbs. of yarn and 45,600,000 lbs. of cloth. A year later the reported number of mills was thirty-four, with 932,506 spindles and 4635 looms. In some of the large cities modern flour and rice mills have been set up. There is some manufacture of iron, especially at Hanyang, near Hankow, but the works here were seriously damaged during the revolution.

China is rich in minerals, but in general exploitation has not attained a large development. The coal deposits are among the richest in the world. Tin, iron, antimony, lead, zinc, copper, and salt are worked, the most important being tin (in Yünnan) and iron.

One of the principal industries, especially in Szechwan, has been the production of opium. The use of this drug became such a menace to the welfare of the Chinese people that the government decided to lessen and, if possible, to extinguish its importation and the cultivation of the poppy. An agreement between China and Great Britain, signed May 8, 1911, provides that the consolidated opium duty (import and likin) be raised from hk.tls. 110 to hk.tls. 350 per picul (133⅓ lbs.), that the export of opium from India to China shall cease before 1917, if clear proof be given of the complete absence of production of opium in China, and that Indian opium shall not be conveyed into any province of China which has suppressed the cultivation and importation of native opium. In consequence the importation of Indian opium steadily declined in 1911, 1912, and 1913; in 1911 notable progress was made in suppressing poppy cultivation, but in 1912, owing to the inability of the new government at Peking thoroughly to impose its will on the provincial authorities, the area under the poppy increased enormously. But in 1913 the government was able to resume its opposition to opium production, and to a large extent destroyed the crops. Toward the end of the year ten provinces were reported free from poppy cultivation. To assist further in the suppression of the traffic, the Indian government in 1913 abandoned its revenue derived from the sale of opium to China; it was stated that for the first time in the modern history of India no Indian opium was being openly sold to China. There continued, however, over the southern borders, considerable smuggling trade with which the Chinese government had to contend.

COMMERCE. Values of the foreign trade of China are stated in haikwan, or maritime customs, taels. This unit fluctuates with the price of silver; in 1907 it was worth about 79 cents; in 1908, 65.5 cents; in 1909, 63.4; in 1910, 66 cents; in 1911, 65 cents; by the end of 1912 its value had advanced to 75.3 cents. The following table shows, in haikwan taels, the value of total imports, net imports, (imports for consumption), total exports, and exports of Chinese produce:

	Imports		Exports	
Year	Total	Net	Total	Chinese
1902..	325,546,311	315,363,905	224,363,990	214,181,584
1907..	429,071,662	416,401,369	277,050,990	264,380,697
1909..	430,048,606	418,158,067	350,883,353	338,992,814
1910..	476,553,402	462,964,894	394,421,836	380,833,328
1911..	482,576,127	471,503,943	388,410,350	377,338,166
1912..	485,726,000	473,097,000	382,949,000	370,320,000

Principal imports in 1911 and 1912, in thousands of haikwan taels: Cotton fabrics, 89,295 and 81,425; cotton yarn, 51,172 and 62,664; opium, 48,257 and 47,707; petroleum, 34,812 and 24,846; sugar, 22,602 and 24,086; flour, 8708 and 12,694; tobacco, 10,711 and 12,425; rice, 18,699 and 11,660; dyes, etc., 12,313 and 11,462; fish, 10,063 and 10,551; iron, 13,180 and 8806; coal, etc., 8468 and 8221; arms and ammunition, 7748 in 1912; matches, 6793 and 6985; leather, 4810 and 6414; machinery, 6793 and 5792; paper, 5606 and 4304; sacking, 4156 in 1912; wood, 5842 and 4042.

Leading exports in 1911 and 1912, in thousands of haikwan taels: Raw silk, 74,510 and 76,739; beans and beancake, 48,190 and 41,206; tea, 38,335 and 33,778; cotton, 21,608 and 17,252; silk manufacturers, 18,166 and 17,013; hides and skins, 16,519 and 15,196; oils, 14,631 and 15,046; sesame, 11,739 and 11,966; tin, 6436 and 11,711; straw goods, 15,418 and 11,414; wool, 7648 and 6863; wheat, 6286 and 6258; cattle, 4205 and 5555; tobacco, 3231 and 3761; silks, 4339 and 3741; peanuts, 4563 and 3599; meats, 3384 in 1912; coal, 3362 in 1912; fruits, 3217 and 3344; flour, 3262 in 1912; paper, 3582 and 3250; fireworks, 3480 and 3196; medicines, 3155 and 3028.

The following table shows imports and exports by countries, in thousands of haikwan taels:

	Imports		Exports	
	1911	1912	1911	1912
Hongkong	148,249	147,801	103,670	103,384
Japan	79,506	91,017	62,049	45,262
United Kingdom	89,997	74,856	17,295	15,900
British India...	37,034	46,646	5,810	7,573
United States...	40,823	36,198	33,966	35,050
Russia	17,266	21,232	50,718	55,197
Germany	22,457	21,130	14,096	14,339
Belgium	10,867	8,751	6,772	6,555
Straits Set'm'ts.	7,736	8,605	5,660	6,339
Macao	6,508	6,408	4,745	4,573
Du. E. Indies...	6,725	6,048	1,451	1,613
Fr. Indo-China..	3,383	3,319	1,331	1,497
Corea	2,510	3,155	3,490	5,443
France	8,018	2,932	39,102	38,809
Austria-Hungary	1,353	2,275	2,270	1,873
Canada	553	1,111	1,283	885

	Imports		Exports	
	1911	1912	1911	1912
Netherlands	1,417	982	6,503	7,615
Italy	675	486	9,346	10,843
Other	1,017	2,774	5,654	7,770
Total	482,576	485,726	377,338	370,320
Reëxports	11,072	12,629	11,072	12,629
Net imports....	471,504	473,097	......	......
Gross exports...	.....	......	388,410	382,949

Shipping. In 1912 the total tonnage of entries and clearances combined, in both the foreign and the coasting trade, at the treaty ports, was 88,206,000, as compared with 85,772,000 in 1911 and 88,777,000 in 1910. Of the total tonnage in 1912, 44 per cent. was British, 22 per cent. Japanese, 20 per cent. Chinese, 7 per cent. German, and 2 per cent. French. The merchant marine in 1912 consisted of 68 vessels of over 100 tons register (58 steam), with a total net tonnage of 90,420.

Communications. Roads in China are numerous but generally in poor condition, and the rivers and canals are commercially of more importance. There is a considerable railway development, made possible chiefly by foreign capital, but many years will elapse before rail facilities will be at all commensurate with the industrial and commercial needs of the population. The reported length of railway open to traffic about the beginning of 1912 was 5822½ miles (including the Russian and Japanese system in Manchuria); reported as under construction, 2205 miles (including lines on which work had been begun even though subsequently suspended or abandoned). The political events of the year under review naturally prevented much progress in the Chinese railway construction. The Tientsin-Nanking line was completed, while work was in progress on the line from Chang-sha to Chau-chan. In December an agreement was reached between the German and Chinese governments whereby a concession was made to complete two important railways in the protectorate of Kiaochow in north China at an aggregate cost of £3,500,000 to £4,000,000. One of these was to run southward from Kaumi on the Shantung railway via Ichowfu to Haichow at the junction of the Imperial Canal with the Tientsin-Pukow Railway. The second was a continuation of the Shantung Railway to the interior from Tientsin westward to a point on the main line from Peking to Hankow. Each of these lines was to be about 150 miles in length and they were to be built as Chinese state railways by the Chinese ministry of traffic, but the capital, the material, and the chief engineer were to be furnished by Germany, the first-mentioned line being constructed first, if it were not found possible to build both lines at once. At the end of the year the commissioners of the two governments were arranging details so that in the following year operations could be begun. Telegraphs (1910): Lines, 47,197 kilometers with 82,344 kilometers of wire; offices, 560. Post offices in 1911 were reported to number 6201. The postal department, formerly a branch of the maritime customs, was transferred to the ministry of communication in 1911.

Army. The reorganization of the military forces of the Chinese Republic was still in progress in 1912 and the formation of the European model army was under way, although various political disturbances naturally interfered with the proper development of those forces. The new army was being recruited by conscription with substitution, but, as a matter of fact, most of the men serving were volunteers. The plan in use provides for three years' service in the active army, three years in the first reserve, and four years in the second reserve, and various estimates were made of the strength, both in the active army and in the total forces on a war basis; 375,000 was one estimate of the total of trained men available, an estimate which includes the relics of the former military organization.

Navy. Aside from small craft, the only serviceable vessels are several cruisers, and none of these is an armored ship. Four of them (one of 4300 tons and three of about 300 tons each) were built in 1897 and 1898. The fifth, the *Ying Swei*, of 2400 tons, was launched at Barrow in July, 1911, and the sixth, the *Chao Ho*, of 2400 tons, at Elswick in the following October. Both vessels were completed in 1912. A seventh cruiser, of the same type as the *Ying Swei*, was launched at the yard of the New York Shipbuilding Company in May, 1912, and in that year three gunboats, of 780 tons each, were built in Japan, and two smaller ones at Kiel. At the end of 1913 two destroyers were building, one at Elbing and one at Trieste. There is a considerable number of torpedo boats, river gunboats, etc.

Government. The republic of China dates from February 12, 1912, and was recognized by the United States on May 2, 1913, and by the other powers on October 6, 1913. In 1913 the government was still provisional, inasmuch as no complete constitution had been adopted, although constitutional articles relative to the presidency had been adopted by the National Assembly. The presidential office is open to men of at least forty years of age, who have resided in China for ten years. The president is elected by a three-fourths majority of a two-thirds quorum of the National Assembly. Yuan Shi-kai, who, on February 15, 1912, was declared provisional president, was elected on October 6, 1913, and inaugurated October 10 as the first constitutional president, for the term 1913-1919, with General Li Yuan-hung as vice-president. The legislature, or parliament, is bicameral: The upper house consists of 274 members elected by the provincial assemblies and various electoral colleges for six years, one-third retiring every two years; the lower house consists of 596 members elected by restricted manhood suffrage. The two chambers in joint session as the National Assembly have constituent powers. The ministry during the first half of the year 1913 was formed in November, 1912: Premier and minister of the interior, Chao Ping-chuan; foreign affairs, Liang Yü-hao (later Lu Cheng-hsiang); finance, Cheu Hsüeh-hsi; war, Tüan Chih-jui; marine, Liu-Küan-hsiung; education, Fan Yüan-lien (later Ch'en Chen-hsien); justice, Hsü Shih-ying; agriculture and forests, Ch'en Chen-hsien; industry and commerce, Liu K'uei-yi; communications, Chu Ch'i-ch'ien. On September 8, 1913, a new ministry was formed and approved by both houses of Parliament: Premier, Hsuing Hsï-ling; interior, Chu Ch'i-ch'ien; commerce, Chang Chien; justice, Liang Chih-chiao; communications, Chou Tzu-chi; foreign affairs, Sun Pao-chi; education, Wang Ta-hsieh; army, Tüan Chih-jui; navy, Liu Küan-hsiung.

HISTORY

THE FIRST NATIONAL ASSEMBLY. A new era of peace and progress, of constitutionalism and reform, was anticipated when the first National Assembly, duly and lawfully elected (see the YEAR BOOK of 1912), met in Peking to form a constitution for the Republic of China. Nation-wide prayer and festivity attended the solemn and exceedingly ceremonious opening of the Assembly on April 8, 1913. Salutes were fired, bands played while 179 senators and 503 representatives met to congratulate each other, and China, upon the happy event. Yuan Shi-kai, somewhat fearful for his personal security, sent his secretary to read the carefully-worded presidential greeting. "The sovereign powers vested in the government certainly belong to the whole body of citizens. . . . To-day all the members of the National Assembly are elected by the people." Yet they are looked on more as advisers than as delegates of the sovereign people. "Each can certainly give counsel which will be loyal advice to the country. . . . The good fortune of the people of the five races will daily increase and progress. With one heart and with united strength they will establish a strong and great republic." Oratorical prophecies were hardly present facts, however. The Parliament was, it is true, elected by the "people," but by a very small minority of the population; as the *North China Daily News* observed, "So far as nine-tenths of the people are concerned, the election of parliamentary representatives means nothing at all." The people of the five races "was not yet moved by one heart": North and South were sadly estranged and the nation was divided by provincial jealousies as well as by class interests. As for the legislators, they seemed more anxious to secure an effective stage-setting for their epoch-making work, to provide themselves with salaries, souvenirs, and mementos, to have pictures of themselves taken, than solicitous about the grave problems confronting their country—the establishment of constitutional government, the negotiation of loans, the reform of taxation, the reclamation of Inner Mongolia and Tibet, the establishment of "a strong and great republic." Some of the delegates were desirous of reform, but manifested a complete inability to decide on immediate and practical reforms. The most numerous group, and the group of which great things were expected, was the Kuo Ming Tang ("All One Brotherhood"), which had 252 of the 596 seats in the lower house, and 98 of the 274 in the upper house. Ardently insistent on parliamentary government, impatient for "reform" in general, solicitous for the industrial and commercial development of China, intolerant of anything tainted by the old régime, unwilling to submit to foreign financial supervision, and obstinately tenacious of the shreds of Chinese authority in Mongolia and in Tibet, the Kuo Ming Tang bade fair to be a powerful force in remaking China. It possessed from the outset a predisposition to obstinacy, however. Its guiding spirit, Dr. Sun Yat Sen, was not a member of Parliament and might very easily become impatient with slow parliamentary methods and resort to revolution. The strength of the Kuo Ming Tang was in the south, moreover, where Yuan Shi-kai was still distrusted as a friend of the Manchus, or else as a possible dictator. Unfortunately the Kuo Ming Tang was inclined to obstruct and oppose instead of coöperating with the president. This fact, together with a woeful ignorance of parliamentary procedure and the frequent lack of a quorum, made it almost impossible to accomplish anything.

7.

THE QUINTUPLE LOAN. The chaotic condition of Chinese finances made it imperative to negotiate a reorganization loan. The annual charge of the foreign debt amounted to about $42,500,000; indemnity payments were in arrears to the extent of some $15,000,000; payment was due on large amounts of Republican bonds, patriotic bonds, and other paper; in addition funds must be provided for the administration, the army, the navy, and the Manchu pensions. All these difficulties would be met temporarily by the proposed international loan of $125,000,000, but in order to establish an equilibrium between revenue and expenditure in the future, only sweeping reforms would suffice. And for these, as well as for the guaranteeing of the payments on the proposed loan, the provinces must consent to higher taxation, the treasury must be carefully supervised, tax-collection must be reorganized, and economies introduced. The great problem was this: Would the delegates to the Assembly come prepared to give their consent? It seemed not. From the first they were opposed to the conditions of the foreign loan. The sextuple group of bankers, formed in February, 1912, and representing the United States, Great Britain, France, Germany, Russia, and Japan, had demanded the privilege of supervising the expenditure of loan funds and safeguarding the collection of the salt *gabelle* in the interests of investors. This privilege, it was complained, would give the powers too free a hand in Chinese affairs; in protest against it, the new administration in the United States ordered the American bankers to withdraw from the loan agreement on March 19, 1913. The remaining five powers concluded on April 26 a loan of $125,000,000 as had been proposed, and gained the right to appoint financial advisers to the Chinese government. Sir Richard Dane (British) was placed in charge of the salt *gabelle;* M. Padoux (French) and M. Konavloff (Russian) of the audit department; and Herr Rump (German), of the loan department. Sir Richard Dane at once set to work with Chinese officials to reorganize the *gabelle*, and late in the year announced that the collection of the *gabelle* was proceeding at the rate of $3,000,000 a month—so satisfactorily, indeed, that an additional quintuple loan of $125,000,000 was contemplated. On September 29 it was announced that Great Britain had withdrawn from the five-power group, and it was inaccurately stated that the quintuple agreement had fallen to the ground. What really happened was that, having achieved their primary object of saddling the Chinese government with financial "advisers," the parties to the international agreement, which, it will be recalled, had bound each to make no Chinese loan without the consent of all, now declared that henceforth each government would be free to negotiate non-"political" loans and obtain industrial concessions for its own banks. The Chinese were delighted at the prospect of easy loans, and according to current reports, Belgian, French, German, and Austrian syndicates had already arranged for concession.

The Opposition. The conclusion of the quintuple loan had been the work of Yuan Shi-kai and his ministers, not of the Parliament. And now Parliament attempted to cripple the president by refusing to sanction the loan. Not only was it indignant at the disregard of its authority; the conditions of the loan were hotly opposed by the Kuo Ming Tang, and it was felt that Yuan had sacrificed Mongolia and Tibet to please his creditors. It was feared, moreover, that with his new financial backing the provisional president would be unduly powerful. It was therefore not surprising that the Parliament not only refused the loan, but went on in July to censure the government and to impeach the ministers. As a conciliatory measure, Yuan consented to dismiss the minister of foreign affairs and the premier. But meanwhile serious trouble had been developing outside of Parliament.

Outside of Parliament the loan had been bitterly censured, and Dr. Sun Yat Sen had declared that it meant the separation of north and south. But even more powerful in moulding public opinion was the Sung Chiao-jen murder case. In March, 1913, General Sung Chiao-jen, a prominent revolutionary general and an influential member of the Kuo Ming Tang, was murdered at Shanghai, at the instigation of Yuan, so it was rumored. At any rate, the government did not proceed against the assassin with satisfactory energy, and the friends of General Sung openly threatened to avenge his death. More trouble was caused by the summary execution of Generals Chang Ching-wu and Fang Wei. And then governors, or *tutuhs*, of three provinces were dismissed for flouting his authority, Yuan said; for protesting against the murder of Sung Chiao-jen, the Kuo Ming Tang alleged. The ex-tutuhs, and notably Li Lieh-chan, joined with other malcontents to intrigue against the president.

The July Rebellion. Realizing that the troops in the Yangtse provinces were ready to mutiny, Yuan Shi-kai made desperate efforts to reduce them while strengthening his loyal northern troops. Early in July mutinous outbreaks gave him an excuse to dispatch northern troops to Shanghai and Kiukiang (on the Yangtze-kiang) in the provinces of Kiangsu and Kiangsi, respectively. In the latter place a collision between the northern and southern troops occurred on July 12. News of the fight inflamed the rebellious elements in the southern and coastal provinces—especially Kiangsu, Anhwei, Chekiang, Fukien, Kiangsi, Kuangtung, Hunan, and Szechwan. On July 15, General Huang Hsing was proclaimed by the tutuh of Kiangsu to be commander-in-chief of a "punitive expedition" against Yuan Shi-kai. On July 18 General Chen Chi-mei declared the independence of Shanghai. Other places followed suit, but, contrary to expectations, the provincial governments of Chekiang and Hunan remained neutral. Tutuh Chen Chuing-ming and the Provincial Assembly of Kuangtung proclaimed independence and issued an interesting indictment of Yuan. First, he executed Generals Chang Ching-wu and Fang-wei. Second, "he hired assassins to murder Sung Chiao-jen, and when proof was produced, he allowed Hung Shih-tso to escape, and arranged for Lin Shi-ching and Tsen Ping to be poisoned at Peking." Third, "when the complicity of the government in the murder of Sung Chiao-jen was discovered, he tried to suppress protests from the people by force and fearing that his funds would not be sufficient, he borrowed money from foreigners against the protest of Parliament." Fourth, "he connived at Russian advances in Mongolia and British claims in Tibet, hoping to curry favor with those powers when he wanted a loan." Fifth, the budget is unsatisfactory and the administration corrupt. Sixth, while disbanding southern troops he daily recruited troops in the north. Seventh, "he bribed the members of Parliament so he could rule as dictator." Dr. Sun Yat Sen somewhat tardily declared himself for the south, in manifestos of July 21.

It was estimated that the rebel forces aggregated 82,000 men distributed as follows: Li Lieh-chun and O Yang-wu, 13,000; Kiangsu army, 25,500; Cantonese army (with some rebels from Hunan), 20,000; Anhwei army, 14,000; Fukien army, 10,000. One large body of insurrectionaries started towards Peking to overthrow Yuan, and crossed the Yangtze River on their northward march, but were defeated on July 20 on the Shantung border and evacuated Hsu Chow-fu before the northern troops. Meanwhile the northern forces in the province of Kiangsu were consistently victorious and soon crushed the rebellion there. Kuangtung was only half-heartedly rebellious and its capital, Canton, was restored to order in August. Within a few weeks of its outbreak the insurrection was confined to Kiangsu province, although desultory fighting continued in other districts, especially in Szechuen. In Kiangsu there was severe fighting at Shanghai, at the Woosung forts, and at Nanking. In Shanghai the northern troops defended the arsenal against rebel onslaughts on July 23 and beat off night-attacks on succeeding nights. During the course of the hostilities foreign marines were landed to protect the foreign settlement at Shanghai. The ultimate victory of the loyalists at Shanghai was due largely to the assistance of the navy, the fidelity of the sailors having been ensured by a payment of wages from funds advanced on the quintuple loan. The Woosung forts were stubbornly defended by the rebels until August 13. Nanking, however, was more strongly garrisoned and withstood the attacks of the northern General Chang Hsun throughout the month of August. With the fall of Nanking the rebellion practically ended.

The Apology to Japan. During the week of lawlessness and looting that followed the fall of Nanking, three Japanese citizens were killed in that city. Reparation was demanded by a Japanese note of September 10, after excited crowds in Tokio had manifested an alarmingly bellicose spirit. The Japanese demands were everywhere commented upon for their severity: The Japanese government, and especially General Chang Hsun must apologize, the offending soldiers must be punished, General Chang's troops must defile before the Japanese consulate in Nanking, and indemnities must be paid. The Chinese government complied, but General Hsun, with a fine regard for his own dignity, prolonged the excitement by refusing to make amends. Finally, on September 28, after a Japanese squadron had been dispatched to inspire him with contrition, he offered apologies, and later sent his soldiers to present arms before the Japanese consulate. Several Chinese soldiers were publicly executed as the probable murderers of the three Japanese. The whole affair gave an unfortunate stimulus to anti-Japanese feelings in China. It was generally believed that Japanese aid had been given the rebels in the recent insurrection, and rumors to that effect received credence despite Japan's official denials. It was well known, moreover, that popular sentiment in Japan was heartily on the side of the south, and lent moral if not material encouragement to the enemies of Yuan Shi-kai. Dr. Sun Yat Sen was exceedingly popular with the Japanese, and other rebel leaders, with prices on their heads, were allowed to find refuge in Japan. It was therefore not entirely without reason that Japan's exacting demands in the Nanking case were denounced in China.

The New Cabinet. Shortly before the outbreak of rebellion, the Chao Ping-chuan ministry had been attacked by Parliament, and two of the cabinet had resigned. The most radical members of the Kuo Ming Tang had left Peking and joined the insurrectionary forces, while the moderates had remained and attempted to make peace with Yuan Shi-kai. The president was amenable to their overtures and allowed Parliament to choose a premier. On July 23 the lower house elected Hsuing Hsi-ling by a vote of 260 to 180, and the choice was confirmed a week later in the Upper House by 124 to 72. Hsuing Hsi-ling encountered great difficulties in selecting a cabinet, but at last, on September 8, he announced the following appointments: Commerce, Chang Chien; justice, Liang Chih-chiao; communications, Chou Tzu-chi; foreign affairs, Sun Pao-chi; education, Wang Ta-hsieh; army, Tuan Chih-jui; navy, Liu Kuan-hsiung; interior, Chu Ch'i-ch'ien. The cabinet, although drawn from the *Chinputang*, or government party, was accepted by substantial majorities in both houses, for its members were mostly men of moderate views and wide experience. Hsuing Hsi-ling himself, a native of Hunan province, had the reputation of a scholar, an able statesman, and an ardent reformer. His administration was opened auspiciously by a declaration of amnesty to penitent ex-rebels, and his programme betokened enthusiasm and energy. Poverty in the lower Yangtse valley would be alleviated by the establishment of workhouses for the indigent, the assistance of merchants, the promotion of agriculture, and the prohibition of gambling. The army would be deprovincialized by the creation of nine military districts; thus the danger of provincial secession would be removed. Finance would be reformed by cutting down the number of useless officials, by reducing military expenditure, by increasing the land, poll, stamp, and title-deed taxes, by reorganizing the government timber business, and by raising the customs tariff. Before the end of the year he had turned hundreds of unnecessary government employes out of office.

The Presidential Election. Meantime a committee of both houses of Parliament had been drafting a constitution. The work was as yet incomplete, but anxiety to hasten the election of a constitutional president—an indispensable condition for recognition by the powers—led the Assembly to adopt the articles relative to the presidency in September. The French system was followed in a general way, the president being chosen in joint session of the houses of Parliament. His term was fixed as six instead of seven years, however, and a three-quarters vote instead of a majority was required for election. The requirements of a three-quarters vote of a two-thirds quorum was criticised as too exacting, and would probably work badly in a close contest. The president must be forty years of age and ten years resident in China, and would not be eligible for immediate reëlection. In accordance with these provisions, the National Assembly—or joint session of Parliament—met on October 6 to elect a president and vice-president. The result was a foregone conclusion; nevertheless, it was not until the third ballot was taken that Yuan Shi-kai received the requisite three-quarters vote. The vote stood: For Yuan Shi-kai, 507; for Li Yuan-hung, 179; total, 686. Subsequently Li Yuan-hung was elected as vice-president. Almost immediately the members of the diplomatic corps at Peking hastened to recognize the republic. A few days later, on October 10, Yuan Shi-kai ceased to be provisional president and was inaugurated as president.

The Kuo Ming Tang and the Constitution. As we have already noted in connection with the presidential election, a part of the constitution was adopted in September by the National Assembly. The committee which prepared the draft constitution was composed of 30 members of each house of Parliament, and held its inaugural session on July 12. Of the 60 committeemen, 32 owed allegiance to the Kuo Ming Tang, 17 to the Chinputang, and 11 to the Kinghotang. The majority reported a draft constitution of 113 articles in September. As was to be expected, the proposed constitution vested practically all powers in Parliament and would have made Yuan Shi-kai a mere figure-head without the right even nominally to select his ministers. Freedom of speech, press, residence, and worship were guaranteed. In connection with the latter it may be remarked that a considerable agitation for the establishment of Confucianism as a state religion was countervailed by the efforts of devotees of other religions (Taoism, Mohammedanism, Buddhism) and the protests of Christian missionaries. It was on the question of presidential powers that the constitution shipwrecked. Quite naturally and not unjustifiably Yuan insisted on a strong executive, and offered three amendments relative to (1) the determination of the administrative system; (2) the appointment of foreign ministers; and (3) the treaty-making power. Vice-president Li Yuan-hung urged that the ministry should not be responsible to Parliament, since the ablest men would be willing to serve one master, the president, but not many masters in the Parliament. nevertheless the Kuo Ming Tang persisted. Just at this time several telegrams were discovered which revealed the treasonable correspondence of Kuo Ming Tang parliamentarians with the leaders of the July rebellion. The discovery furnished Yuan with a convenient excuse for doing away with his stubborn opponents. On November 5 he issued three mandates countersigned by the premier and the minister of the interior, dissolving the Kuo Ming Tang, and unseating its members of Parliament—252 of the 596 members of the lower house and 98 of the 274 in the upper house. The step was a bold one, but it succeeded—at least for the time being. So confident was the president that on November 24 he dispensed with martial law in Peking.

The Council. Parliament could now no longer obtain a quorum and was forced to adjourn until alternates should fill the vacant seats. In the meantime about 300 members continued to meet about once a week to discuss the situation. Yuan Shi-kai did not intend to interrupt constitution-making, however. A new body was called, or rather an old body, the Central Administrative Council (*Hsingchen Huiyi*) under a new name. The Political Council (*Chentzu Huiyi*) met first on December 15. It consisted of 8 members of the presidential secretariat, two representatives of the cabinet, one of each of the nine ministries, four from Mongolia, four from Tibet, and two from each province—in all, 71. The council was to discuss the appointment of another council to draft a constitution, and was to advise the government on administrative measures. The new draft constitution would then be submitted for ratification to the National Assembly.

Russia and Mongolia. The Mongolian question, discussed at length in previous Year Books, continued to agitate Russo-Chinese relations. It will be recalled that on October 21, 1912, a Russo-Mongolian agreement had been signed at Urga, by which Russia agreed to "assist Mongolia to maintain the autonomous régime which she has established, as also the right to have her national army, and to admit neither the presence of Chinese troops in her territory nor the colonization of her land by the Chinese." The privileges conceded in return by Mongolia and defined more particularly in the protocol of November 3, 1912, gave Russians a free hand in the sphere of trade, exempted Russian merchants from the payment of customs dues, entitled Russians to the protection of Russian consular courts, and allowed them to establish "factories" or trading settlements. All this applied to Outer Mongolia, but might easily be extended to Inner Mongolia. The endeavor of the Russian government to gain recognition for the Urga agreement and protocol was the central fact of the year's diplomacy. On May 28 a draft treaty was submitted to the Chinese Parliament whereby China would recognize the previously-existing autonomy of Outer Mongolia, and the Russian commercial privileges in that province, would refrain from colonizing Mongolia, and would accept Russia as a mediator in dealing with Mongolia. Russia, on the other hand, would recognize both Inner and Outer Mongolia as integral parts of China. Such an agreement was by no means acceptable to patriotic Chinamen, and the Parliament temporized until on July 13 a Russian note informed the Chinese government that negotiations were now broken off as a result of a lack of frankness on the part of China. China must recognize the Urga convention and protocol before negotiations could be resumed. Almost at the same time, a brigade of Russian railway guards and three batteries of Russian artillery were moved to Tsitsihar in the province of Heilungkiang as a protest against the Russophobe policy of the tutuh of that province. Intimidated, the Chinese government hastily dismissed the tutuh in question and made reparation for losses sustained by Russian traders. It was quite evident that Russia would listen to no remonstrances as far as Mongolia was concerned, and on November 5 a Russo-Chinese treaty of five articles was signed. As in the proposed treaty Russia recognized Chinese suzerainty over Mongolia; China recognized the autonomy of Outer Mongolia.

China was to have representatives in Mongolian trade centres; Russia was privileged to establish consular guards (1000 men or less). Subsequently, on December 12, the Russian minister in Peking created a sensation by proposing that all foreign troops should be withdrawn from northern China.

The hostilities between Chinese and Mongolian troops in eastern Mongolia continued throughout 1913, but were of little significance. During the greater part of the year a body of several thousands of Mongols was operating in a region about 300 miles from Kalgan, that is, within 300 miles of the Great Wall, and repeatedly defeated the Chinese forces.

Tibet. Chinese troops were also unsuccessful in eastern Tibet and the expeditions sent out against the Tibetans by the tutuh of Szechwan were dismal failures. The status of Tibet was discussed in November at a trilateral conference at Simla between China, Tibet, and Great Britain. From Simla the conference was adjourned to Delhi. The negotiations seemed to be hopelessly obstructed by the refusal of the Chinese delegate, Ivan Chen, to concede the Tibetan demands that (1) the complete autonomy of Tibet should be recognized, (2) no Chinese officials of any description should be stationed in Tibet, and (3) large indemnities should be paid for the damage done by Chinese troops to ecclesiastical and other property in Tibet.

The Opium Traffic. The friction between the Chinese and British governments over the opium traffic was not lessened by the presence in Great Britain of a Chinese anti-opium orator. At the beginning of the year there were in Honkong and Shanghai accumulated stocks of Indian opium to the value of $51,250,000. Anxious to prevent the sale of opium in China, the Chinese government offered to pay the cost of reshipping the opium to other markets; the offer was refused, however. In justification of the refusal, it was pointed out that some opium was still grown in China; that if the Chinese were patient, the Indian opium trade would probably be suppressed in 1917 in accordance with the convention of May, 1911; and that the bankers interested in the opium held in Chinese ports could not afford to sell it at lower prices elsewhere. The situation grew more and more unpleasant: The British minister threatened to inform his government that mere diplomacy was no longer of any use. Nothing come of the threat, however, and on December 24 the Chinese government issued a half-hearted mandate enjoining treaty-observance upon provincial authorities. See further under section *Industries*.

CHINESE IMMIGRATION. See Immigration and Emigration.

CHOLERA. See Vital Statistics.

CHORAL SOCIETIES. See Music.

CHOSEN. See Korea.

CHRISTIAN ENDEAVOR, United Society of. An interdenominational society for

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young people, founded in Portland, Me., in 1899. Conventions of the society are held biennially. The 26th convention was held at Los Angeles on July 10, 1913. The membership of the society is about 4,000,000, and about 80,000 different societies. The officers in 1912 were as follows: President, Frances E. Clark, D.D.; general secretary, William Shaw; editorial secretary, Amos R. Wells; treasurer, H. N. Lathrop; interstate secretary, Karl Lehman.

CHRISTIANS. The denomination known as Christian originated in 1794 in Virginia and North Carolina. Independent movements in New England (1800) and Kentucky (1804) on similar lines were merged with that of the South. The founders rejected creeds and "unscriptural" names as perpetuating division. They stood for the Bible as their only rule of faith, with liberty of interpretation for the individual believer. Christian character was taught as the basis of fellowship, no doctrinal or ceremonial tests being required. In form of government they are congregational, but the churches are united in conferences and conventions for coöperative effort. The highest representative body is the American Christian Convention, made up for the most part of delegates from the conferences. This organization has supervision of the general work of the denomination.

School maintained by the denomination are Union Christian College in Indiana, Defiance College in Ohio, Starkey Seminary in New York, Elon College and Franklinton Christian College (colored) in North Carolina, Palmer College and Weaubleau College in Missouri, and Jireh College in Wyoming. It has one theological school, the Christian Biblical Institute in Ohio. Mission work is carried on in Japan, Porto Rico, and continental United States and Canada. Periodicals are the *Herald of Gospel Liberty*, published in Dayton, Ohio; *The Christian Sun*, in North Carolina; and the *Christian Vanguard*, at Toronto, Canada. A monthly magazine, *The Christian Missionary*, is published in the interest of missions. There is a home for aged Christian ministers at Lakemont, N. Y., and an orphanage at Elon College, N. C. The latest statistics give the membership as 104,027.

CHRISTIAN SCIENCE. See RELIGIOUS DENOMINATIONS.

CHURCHILL, WINSTON. See GREAT BRITAIN, *Home Rule Bill, Conference or War, Navy,* and *passim.*

CHURCH PEACE LEAGUE. See ARBITRATION, INTERNATIONAL.

CHURCH STATISTICS. See RELIGIOUS DENOMINATIONS.

CIGARS AND CIGARETTES. See TOBACCO.

CINCINNATI SYMPHONY ORCHESTRA. See MUSIC.

CITRUS FRUITS. See HORTICULTURE.

CITY BUDGET. See MUNICIPAL GOVERNMENT.

CITY CHARTERS. See MUNICIPAL GOVERNMENT.

CITY MANAGER PLAN. See MUNICIPAL GOVERNMENT.

CITY PLANNING. The city planning movement continued to grow, in all parts of the world. Improvements to the plans of existing cities were being proposed on every hand, and here and there portions of these improvements are being carried out. More rarely, the building of a new industrial town or the founding of a State capital, *de novo*, as for the commonwealth of Austria, gives occasion for laying out an entirely new city.

Most of the replanning of cities was still being done by civic organizations and had not got beyond the paper-plan stage. A number of cities, fortunately, now have permanent city planning commissions, though these are mostly advisory in character. Such commissions were made compulsory for all cities and the larger towns of Massachusetts, in 1913, and permissive legislation for their organization was granted in a few other States. General societies for the promotion of city planning were formed during the year in the United States, Canada, and Great Britain, and City Planning Exhibits were held at home and abroad. Important constitutional amendments authorizing excess condemnation are outlined farther on.

Before passing in review some of the chief city planning events of the year, the broadening of the scope and meaning of the modern city-planning movement needs to be realized. It no longer concerns itself merely with the street plans of a city and the grouping of parks, playgrounds, and public buildings in their proper relation to each other. It now includes transportation facilities by land and water, with their proper terminals, water supply, sewerage, surface drainage, lighting, and a score of other public services which supply the needs, and make for the comfort, convenience, welfare, and uplift of the citizens. It also includes various æsthetic features. As a rule, however, these are best brought out by making each element in the city plan the best possible expression of the service it is designed to render, leaving adornment to come as a crowning grace to natural beauty. Had this principle been followed in all city planning reports and less emphasis been laid upon the "city beautiful," a larger percentage of the plans thus far made would have got beyond paper. Where a city already has all or a greater part of the utilities, the main tack of city planning should be such rearranging as will remedy defects due to a lack of foresight or skill, and an effort to bring all the elements into a harmonious whole, not overlooking æsthetics nor the amenities of city life, nor the individuality of the city and its people.

REPORTS, PLANS, AND COMMISSIONS. A fairly complete list of places for which city planning studies and reports had been made in the last decade, with the date of the report, by whom made, and for whom (association or public officials) made, is given herewith. The list includes 62 places. The distribution of the reports by years is as follows: Date not given, 12; 1902, 1; 1903, 2; 1904, 2; 1905, 2; 1906, 4; 1907, 5; 1908, 3; 1909, 8; 1910, 4; 1911, 12; 1912, 5; 1913, 4.

Some of the reports cover an extensive remodeling of the whole city plan and others relate only to elements of the plan, such as parks or civic centres.

According to a paper by Flavell Shurtleff, read before the City Planning Conference, April, 1913, the following 18 cities then had city planning commissions:

Hartford, 1907*; Milwaukee, ? †; Chicago, 1909 †; Baltimore, 1910*; Detroit, 1910 †;

Newark, 1911*; St. Louis, 1911 †; Cleveland, 1911 †; Jersey City, 1911*; Pittsburgh, 1911*; Philadelphia, 1911 †; Salem, Mass.. 1911 †; Lincoln, Neb., 1911 †; Trenton, N. J., 1912*; Cincinnati, 1913 †; Scranton, Pa., 1913*; Schenectady, 1913 †; Paducah, 1913 †. In Canada, 9 cities had city-planning commissions early in 1913, as follows: Calgary, Edmonton, Lethbridge, Regina, Saskatoon, Winnipeg. See also statement further on under sub-head, *General Legislation.*

New Industrial Cities. Either commercial or humane reasons, or the two combined, have led to the building of immense industrial plants and with them cities of considerable size in what were formerly unoccupied areas. A well-known American example is Gary, Ind., built in and since 1906 by the United States Steel Corporation. A brief, popular description of the new industrial town of Torrance, Cal., between Los Angeles and the seacoast, may be found in *The American City* for October, 1913. More detailed technical descriptions of the city itself appeared in *Engineering News* of October 30, 1913. The new industrial coal mining town of Kincaid, Ill., construction of which was begun in 1913, was also described in *Engineering News* of January 8, 1914.

Civic Centres, or carefully planned groups of public buildings, have been more or less definitely planned during the past few years for a number of cities, and the plans have been partly or wholly carried out in a few cases. Among the cities reported as having civic centre plans are Akron, Ohio; Cedar Rapids, Ia.; Cleveland, Ohio; Denver, Col.; Hamilton, Ohio; Kansas City, Mo.; Wilwaukee, Wis.; San Francisco, Cal.; Springfield, Mass.; Toledo, Ohio; Waterbury, Conn.

In December, 1913, Springfield, Mass., dedicated a new city hall and municipal auditorium, together with a monumental clock tower placed between the two. Denver acquired the larger part of the area for a civic centre, well set in public grounds, the whole adjoining the existing capitol grounds. Looking from the latter across Broadway, one will see a plaza, then a sunken garden with a formal grove on either side. Beyond the garden there will be a lawn, flanked on one side by a library building, already erected, and on the other by an art building. The plan calls for closing the vista by a municipal building.

The Australian Capital Plan. An account of the competition for the new capital of the commonwealth of Australia, at Canberra, New South Wales, was given in the article, City Planning, in the 1912 Year Book, and the prize plan of Walter Burley Griffin, of Chicago, was there reproduced. After the result of the competition was announced, all the plans received were most unfortunately referred to a departmental board, to make up a composite plan from the best elements of each. Disinterested experts declared that the result was the hodge-podge that might have been expected. In 1913 Mr. Griffin was invited to go to Australia to confer with the authorities there. This gave rise to hopes that Mr. Griffin would be given the opportunity to work out his plan with such modifications as might be determined upon after an actual visit to the site and conference with the Australian officials.

The New Capital of India. The removal of the capital of India from Calcutta to Delhi, sanctioned by the British Parliament in 1912, was followed by a series of reports by the Delhi town planning committee, printed in India and dated London, 1913.

General Legislation. The Massachusetts legislature of 1913 made it mandatory for every city of the commonwealth (nearly 35) and every town of more than 10,000 by the last preceding Federal or State census, to create a "planning board whose duty it shall be to make careful studies of the resources, possibilities and needs of the city or town, particularly with reference to conditions which may be injurious to the public health or otherwise injurious, in and about rented dwellings, and to make plans for the development of the municipality with special reference to the proper housing of its people." (Chap. 494, *Mass. Laws* of 1913.)

The New York legislature of 1913 authorized (chap. 699) cities and villages to appoint planning commissions, and the Pennsylvania legislature (bill 406) made it mandatory for each city of the third class (more than 20) to create a city planning department in charge of a city planning commission. The Pennsylvania legislature also created the Philadelphia suburban metropolitan planning district (bill 226) with authority to propose various improvements, the adoption of which is optional with the several municipalities in the district.

The province of Alberta, Canada, passed a town planning act in 1913, which appears to give both the several municipalities and the administrative branch of the provincial government more power over city planning than has yet been granted in the United States.

Excess Condemnation. Constitutional amendments were adopted by poplar vote in New York, Ohio, and Wisconsin, in 1913, making possible the adoption of excess condemnation, or the compulsory taking more land than is needed for public improvements, with the privilege of subsequent sale. Massachusetts led in this movement by a constitutional amendment adopted by popular vote in 1911.

Regulation of Building Heights. A heights of building commission was created by the board of estimate and apportionment of New York City early in 1913, and made public some of the results of its studies, at the close of the year. Numerous maps and diagrams showing actual conditions in New York City were prepared and detailed recommendations for limiting building heights were made. A maximum height of 300 feet at the street line was recommended, but with permissible excesses in case of set-backs from the street line and with no height limit for towers not covering more than 25 per cent. of the total area of the lot. It is reported that the committee found that the Woolworth building (750 feet high) is from 670 to 685 feet higher than the maximum limit for buildings in London, Berlin, Paris, Rome, and Stockholm. The maximum building heights permitted by ordinance in some of the largest cities of the United States is given as follows: Milwaukee, 225 feet; Chicago, Cleveland, Erie, Fort Wayne, Indianapolis, Newark, 200 feet; Baltimore, 175; Portland, Ore., 160; Los Angeles, 150; Boston,

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* Created by legislation. † Created by city ordinance.

ALPHABETICAL LIST OF CITIES FOR WHICH CITY PLANNING REPORTS HAVE BEEN MADE

Year	Place	By whom	To whom
....	Atlantic City, N. J.	....	....
1910	Baltimore, Md.	Municipal Art Society	....
1911	Bangor, Me.	Civic Improvement Committee	....
1912	Billerica, Mass.	Warren H. Manning *et al.*	....
1911	Binghamton, N. Y.	Charles Mulford Robinson	Mercantile Press Club
1909-13	Boston, Mass.	Metropolitan Imp'm't Com. Metropolitan Plan Com'sion	....
....	Boulder, Col.	....	....
1908	Cedar Rapids, Ia.	Charles Mulford Robinson	Mayor and City Council
1911	Chattanooga, Tenn.	John Nolen	Board of Parks
1906-13	Chicago, Ill.	(1906) D. H. Burnham and Edward H. Bennett	Commercial Club
		(1911) Chicago Plan Commission	....
		(1913) Charles H. Walker	Text Book for Public Schools
1903	Cleveland, O.	Board of Supervisors	Mayor and Board of Pub. Serv.
1904	Cohoes, N. Y.	Public Improvement Commission	....
1912	Colorado Spgs., Col.	Charles Mulford Robinson	Art Commission
1905	Columbia, S. C.	Kelsey & Guild	Civic League
1908	Columbus, O.	Plan Commission	Mayor
1911	Dallas, Texas	George E. Kessler	Park Board
1906	Denver, Col.	Charles Mulford Robinson	Art Commission
		(1911) Art Commission	....
....	Des Moines, Ia.	....	....
....	Detroit, Mich.	....	....
1913	Dobbs Ferry, N. Y.	Geo. B. Ford and E. P. Goodrich	Village
1907	Dubuque, Ia.	Charles Mulford Robinson	Joint Committee of Three Clubs
....	Erie, Pa.	....	....
1909	Fayetteville, Ind.	Charles Mulford Robinson	Park Commission
1909	Fort Wayne, Ind.	Charles Mulford Robinson	Civic Improvement Association
....	Glen Ridge, N. J.	John Nolen	Borough Imporvement Com'tee
1909	Grand Rapids, Mich.	Arnold W. Brunner and John M. Carrère	....
1907	Greenville, S. C.	Kelsey & Guild	Municipal League
1909	Hartford, Conn.	Carrère & Hastings, under City Plan Commission	....
....	Houston, Texas	....	....
1911	Jersey City, N. J.	Civic Plan Commission	....
		(1913) E. P. Goodrich and G. B. Ford	....
1913	Kirksville	Civic Improvement League	....
1909	Los Angeles, Cal.	Charles Mulford Robinson and Municipal Art Commission	Mayor
....	Madison, Wis.	....	....
1911	Milwaukee, Wis.	F. L. Olmstead and John Knowlton	City Planning Commission
		(1909-10) Metropolitan Park Cm.	....
1911	Minneapolis, Minn.	Civic Commission	....
1909	Montclair, N. J.	John Nolen	Municipal Art Commission
1911	Newark, N. J.	G. P. Ford and E. P. Goodrich	City Plan Commission
		Committee on Civic Art & Arch.	Board of Trade
....	New Haven, Conn.	Frederick L. Ford	Mayor and Chairman of Aldermanic Approach Committee
		Charles Frederick Puff	M. R. Sherwall, Chief Engineer Department Public Works
1913	Newport, R. I.	Frederick Law Olmstead	Newport Improvement Asso'n.
1903-11	New York City, N. Y.	Art Commission	....
		Congestion of Population Com.	Mayor
		Fifth Avenue Commission	....
		Improvement Commission	Mayor
		Finance Department	City Comptroller
1906	Oakland, Cal.	Charles Mulford Robinson	....
1907	Ogdensburg, N. Y.	Charles Mulford Robinson	Mayor and Common Council
1911	Philadelphia, Pa.	('88) Art Jury	....
		Bureau of Surveys	Department of Public Works
1911-13	Pittsburgh, Pa.	City Planning Commission	....
		Bion J. Arnold, John R. Freeman, Fred'k Law Olmstead	Civic Commission
....	Portland, Ore.	....	....
1910	Providence, R. I.	John K. Freeman and East Side Approach Commission	City Council
1913	Raleigh, N. C.	Charles Mulford Robinson	Civic Dept. of Woman's Club
1910	Reading, Pa.	John Nolen	....
1907	Roanoke, Va.	John Nolen	Women's Civic Betterm't Club
1911	Rochester, N. Y.	Arnold W. Brunner, Fred'k Law Olmstead, Bion J. Arnold	Civic League
....	St. Joseph, Mo.	....	Civic Improvement Committee
1907	St. Louis, Mo.	Reports of Committees	....
1906	St. Paul, Minn.	Capitol Approaches Commission	Common Council
1912	Salem, Mass.	City Plans Commission	Mayor and City Council
1908	San Diego, Cal.	John Nolen	....
1909	San José, Cal.	Charles Mulford Robinson	Art League
1905	San Francisco, Cal.	D. H. Burnham and E. H. Bennett	Association for Improvement and Adornment of San Francisco
		(1906) Marsden Manson	Mayor and Committee
1909	Santa Barbara, Cal.	Charles Mulford Robinson	....
1912	Santa Fé, N. M.	City Planning Board	....
....	Schenectady, N. Y.	....	....
1911	Seattle, Wash.	Municipal Plans Commission and Virgil G. Bogne, Engr.	....
1902	Washington, D. C.	U. S. Senate Committee on District of Columbia	U. S. Senate
1910	Waterloo, Ia.	Charles Mulford Robinson	Civic Society

Charleston (S. C.), Manchester (N H.), Salt Lake City, Scranton, Worcester, 125; Providence (R. I.), 120.

Societies, Conferences, and Exhibitions. The National Conference on City Planning was held at Chicago in May, 1913; the first Canadian Housing and Town Planning Congress at Winnipeg, Manitoba, in July, 1913; and the first Massachusetts City and Town Planning Conference at Boston, in November, 1913, under the auspices of the governor and the homestead commission. An international town planning conference was held at Ghent during the year, an international garden cities and town planning association was organized in London, and tentative plans were made for a conference, if possible at Letchworth, in July, 1914; and late in the year a British town-planning institute was organized in London. City planning exhibits were held at the Ghent conference, while in New York City, in November, there was a city planning exhibition, under the joint auspices of the city of New York and the Merchants' Association of New York City.

Bibliography. A "Select List of Works Relating to City Planning and Allied Topics" was issued by the New York Public Library in October, 1913. It included some 600 references to other bibliographies, periodicals giving attention to city planning, and books, reports, and articles on the subject. See also Municipal Government.

CIVIC ASSOCIATION, American. A body organized in 1904 for the purpose of the cultivation of higher ideals of civic life and beauty in America, the promotion of city, town, and neighborhood improvement, the preservation and development of landscape, and the advancement of outdoor art. The association has directed special attention to the importance of comprehensive city planning, and as kindred to this subject such other activities as the creation, development, and maintenance of parks and boulevards; the wise planting and care of trees, the elimination of the smoke, billboard, and house-fly nuisances; the organization of adults and children in the working group for civic improvement. During the summer of 1913, in the extension of its service to American committees, a group of members visited European countries for the purpose of studying the civic advance and the methods adopted in those countries for efficient administration. Four weeks were spent in German cities, one week in Paris, and one in London. During the early months of the year, the activities of the association were largely directed to securing from Congress a continuation of the necessary protection of Niagara Falls, due to the approaching termination of the Burton bill, which limited the diversion of water for commercial purposes, from the American Falls. Later in the year at the regular session of Congress, renewed efforts on the part of the association were taken up to secure a reënactment of the terms of the Burton bill. The association has led in the national movement for the protection of national parks in which it has continued its recommendation first proposed at its convention in 1910 for the creation of a national parks service. As a specific endeavor in behalf of the parks, the association coöperated actively for the preservation of the Hetch-Hetchy Valley, and opposed the granting of a permit to the city of San Francisco to create a storage reservoir in the valley for a domestic water supply.

CIVIC CENTRES. See City Planning.

CIVIC FEDERATION, National. The 14th annual meeting of the federation was held in New York City on December 11 and 12. The programme included reports from the various departments of the federation on many important propositions of national interest. A department on compensation for industrial accidents and their prevention; the food and drug department; a welfare department; the woman's department; the department of industrial mediation laws; the department on the regulation of municipal utilities; the department on the regulation of industrial corporations, and the department on industrial economics. The department on compensation for industrial accidents, and their prevention, had during the year a commission of six men who made a study of the actual results of the working of the various forms of compensation acts. The commission confined its work to the States where a compensation law has been in effect for at least a year. These States include Massachusetts, New Jersey, Michigan, Ohio, Illinois, Wisconsin, California, Oregon, and Washington. The report of the commission contained the results of a *questionnaire* sent to 25,000 employers in these States, who have either accepted the acts or who have refused to do so. The views of the working men themselves either through their unions or as individuals, was also included in the report. In the light of the information secured by this commission, the model workmen's compensation bill of the National Civic Federation, will be redrafted. One session of the meeting was devoted to the construction of the drug department. An expert committee was making investigations into this problem during the year. The department on industrial mediation laws reported a model State mediation bill. The department on regulation of municipal utilities reported a proposed model bill for the regulation by the State of street railways, gas, electric light, and other municipal utilities. The department on regulation of industrial corporations presented a proposed bill supplementing the "Sherman anti-trust act."

The woman's department reported on its various activities in its different branches. The development of the year in welfare work, which has been specially important among large corporations, were a part of the report of the welfare department. This department proposed the establishment of a permanent exhibit to give to employers, standards that may be followed.

CIVIL SERVICE. The total number of competitive positions under the federal civil service on June 30, 1912, was 395,460. Of these, 61,388 were excepted and non-competitive positions, and 59,423 were unclassified positions. The positions filled by presidential appointment numbered 10,397. The largest number of positions under the civil service were held by fourth-class postmasters. Of these there were 14,169 holding competitive positions and 36,332 holding non-competitive positions. In the rural free delivery service were 43,006 holding competitive positions and one thousand holding non-competitive positions. In the post offices except fourth-class postmasters, there were 77,559 holding competitive positions, 2413 non-competitive, and 13,263 unclassified. In the rural mail service were 17,404 competitive positions, 121 non-competitive, and seven unclassified. In the State Department were 7572 positions under the civil service, in the Department of the Interior 5056, in the Department of Commerce 2590, in the Department of Agriculture 3404, the Government Printing Office 3942. These were all employed in the Federal offices in Washington. The total number of employes in the government offices in Washington was 32,368.

PRESIDENT WILSON'S ADMINISTRATION AND THE CIVIL SERVICE. It was well known from President Wilson's writings and utterances previous to his election as President, that he was entirely in favor of the principle of selection of government officers and employes by a civil service examination. The pressure brought to bear upon the incoming President by would-be office holders and their supporters is so strong that there was a great public interest as to how the President's action in regard to filling these offices would compare with that of his predecessors. One of the first acts of his administration was to turn over to his cabinet heads the duty and responsibility of receiving applications for office. He announced on March 5 that he did not intend to see applicants for office in person, unless he himself invited the interview, and that it was his intention to deal with the appointments of the heads of several of the executive departments.

FOURTH-CLASS POSTMASTERS. One of the most interesting questions in regard to the application of the merit system arose in the Post Office Department in relation to a large number of fourth-class postmasters. In 1908 President Roosevelt by executive order classified or put under civil service rule, about 15,000 fourth-class postmasters in the territory north of the Ohio and Potomac rivers and east of the Mississippi. On October 15, 1912, shortly before the presidential election, President Taft, by another executive order, classified all the remaining fourth-class postmasters in the United States, numbering 36,000. This made a total of 51,000 fourth-class postmasters who had been classified in the permanent civil service. These postmasters had not been required to pass any sort of examination. President Wilson, by an order issued on May 7, 1913, amended the orders of his two predecessors by providing that no fourth-class postmaster should be given a competitive classified status unless he had taken and passed a competitive examination. He further ordered that all vacancies in these offices should be filled through examinations conducted by the National Civil Service Commission or by post office inspectors. It was reported late in the year that the Postmaster General had decided to recommend the classification of all second and third class postmasters, who number about 8000; and at about the same time the Secretary of Commerce recommended to Congress the employment of fourteen commercial attachés at American embassies and legations, to supplement the work of the consular service, in sending commercial information, and so promoting the commerce of the United States. These were to be appointed without civil service examinations.

STATE DEPARTMENT. In the Department of State, the executive orders of the two preceding administrations were adhered to during the year, exceptions being made only when, in the case of vacancy in one of the higher positions, the President at the time did not find within the service a person entirely qualified. Up to December 1, all previous executive orders had been maintained in regard to about thirty secretaries of embassies and legations, 22 consuls general, and 50 consuls, all of whom had been appointed, transferred, or promoted through original examinations.

REMOVALS AND APPOINTMENTS. In the first nine months of the administration, the following changes were made in unclassified officers not under the civil service rules. Postmasters of the first, second, and third class, 2572; collectors of internal revenue, 31; collectors of customs, 24; United States district attorneys, 30; registers of general land office, 21; United States marshals, 19.

ATTACKS ON THE MERIT SYSTEM. There were several attacks made in Congress upon the merit system. These proceeded for the most part from members of the Democratic party of both House and Senate. The most serious of these was a proposed amendment to the post office appropriation bill which provided for the repealing of the orders classifying fourth-class postmasters previously alluded to above. This amendment was defeated in the House by a vote of 141 to 107, 40 Democrats voting against the repeal. An amendment to cut off the appropriation for the expenses of post office inspectors in conducting examinations, was adopted in the House by a close vote, but was rejected in the Senate. The income tax collection provision in the tariff bill was opposed by the United States Civil Service Commission and by many business organizations throughout the country, and was in consequence amended so that appointment should be made under rules and regulations to be fixed by the Secretary of the Treasury. In October, the Secretary of the Treasury issued regulations governing the appointments to the income tax collection force. Under these regulations, nothing but pass examinations can be held so that there will be no competitive system of appointments. Moreover, every candidate is to be asked in what Congressional district he claims legal residence. To the adoption of this measure, the Republicans were uniformly opposed, and 57 Democrats also voted against it. The seven bills introduced in the Senate to extend the Federal classified service, were all introduced by Republican senators.

An attempt was made to pass a "rider" to the urgent deficiency appropriation bill, removing from the competitive classified service, practically all deputy collectors of internal revenue and deputy United States marshals. The deputy collectors had been in the competitive classified service since 1907, the competitive marshals since 1909. Opposition to the passage of this "rider" was very strong in Congress, and party lines were to a large extent obliterated. It was, however, passed by a majority of five, 57 Democrats voting against it. The President was urged by the National Civil Service Reform League and other bodies and individuals to veto the bill containing the "rider." He signed it, however, with the following memorandum: "I am convinced after a careful examination of the facts that the offices of deputy collector and deputy marshal were never intended to be included under the ordinary provisions of the civil service law. The control of the whole method and spirit of the administration of the provision in this bill, which concerns the appointment of these officers, is no less entirely in my hands than it was before the bill became a law; my warm advocacy and support both of the principle and the *bona fide* practice of civil service reform is known to the whole country, and there is no danger that the spoils system will creep in with my approval or connivance."

Civil Service Commission. The civil service commission was reorganized by President Wilson. He retained Commissioner McIlhenny, who was made president of the commission, and appointed Charles H. Galloway of South Carolina, and Herman W. Craven of Washington, as successors to General Blake and Commissioner Washburn, whose resignation he accepted.

State and Municipal Civil Service. The record of progress of the civil service throughout the United States in 1913 was notable. Three States, California, Connecticut, and Ohio, passed civil service laws. In California and Connecticut, the law applies only to the State service, but in Ohio, in accordance with a constitutional provision adopted by a majority of over 100,000 in 1912, the law covers every city, county, and city school district, as well as the State service. In several cities, charters were adopted containing strong civil service provisions, and civil service commissions were established in Los Angeles County, and in the consolidated county and city government of Denver. In Elizabeth, N. J., the people adopted the provision of the State law by a majority of 16,067, and Detroit, Grand Rapids, and Houston, Texas, voted for the adoption of civil service amendments to local charters. An attempt made in the Illinois legislature to repeal the civil service law was defeated. Merit system appeals introduced in the legislatures of Texas, Michigan, and Minnesota failed to pass. See also Civil Service Reform League.

CIVIL SERVICE COMMISSION. See Civil Service.

CIVIL SERVICE REFORM LEAGUE, National. The thirty-third annual meeting of the league was held in Boston, December 11 and 12, 1913. An address reviewing the progress of civil service during the year, and of the work of the league in this connection, was made by President Eliot. The league followed carefully the progress of the laws in Congress which related to the civil service, and it was largely through its efforts that certain obnoxious measures were defeated. (See Civil Service.) In the resolutions adopted at the meeting, the league approved the recommendation made by the Postmaster-General that the merit system be extended to postmasters of the second and third class. It criticized President Wilson for his action in signing the bill which removed the deputy collectors and deputy marshals from the civil service. It also indirectly criticized the appointments of inexperienced men as ministers and ambassadors to foreign countries. Officers elected for 1913-14 were: President, Richard Henry Dana; vice-presidents, Edwin A. Alderman, Charles J. Bonaparte, Joseph H. Choate, Charles W. Eliot, Harry A. Garfield, George Gray, Arthur T. Hadley, Seth Low, Franklin MacVeagh, George A. Pope, Moorefield Storey, Thomas N. Strong, and Herbert Welch; chairman of the council, Robert D. Jenks; secretary, Robert W. Belcher; and treasurer, A. S. Frissell.

CLARK UNVERSITY. An institution established originally for post-graduate work in Worcester, Mass., in 1889. The collegiate department of Clark College is entirely independent in administration and endowment, although the same buildings are used for both the college and the university. The number of students enrolled in the university in the autumn of 1913 was 90. The faculty numbered 25. There were no notable changes in the faculty during the year and no noteworthy benefactions were received. The productive funds of the university amount to about $2,400,000, and the income to about $96,000. In the library are 65,000 volumes. In the college, the students numbered in the autumn of 1913, 161, and the instructors 24. The productive funds amounted to $1,500,000, and the net income to about $73,000. The president of the university is G. Stanley Hall, Ph. D., LL. D., and of the college, Edmund C. Sanford, Ph. D.

CLASSICAL PHILOLOGY. See Philology, Classical.

CLAY-WORKING INDUSTRIES. Clay-working industries in the United tates in 1912 showed considerable progress. The total value of all clay productions in that year was $172,811,275, compared with $162,236,281 in 1911; an increase of 6.5 per cent. Of the two great divisions of industry, brick and tile, and pottery, the former showed the larger increase, both actual and proportionate. The increase in the brick industry was $8,589,490 or 6.7 per cent., while the increase in the pottery industry was $1,985,004, or 5.75 per cent. The most important features in the industries in 1912 were the large increases in the value of architectural terra cotta, and also of the brick from the Hudson River region, the large decrease in drain-tile, and the excellent condition of the pottery industry. Ohio ranked first in the value of its clay products. In 1912 there were in that State 596 operating plants, and the value of the product was $34,811,508. Pennsylvania ranked second, having 393 plants with an output valued at $21,537,221—New Jersey, third, 155 plants, output valued at $19,338,553—Illinois, fourth, 301 plants, output valued at $15,215,990—New York, fifth, 219 plants, valued at $12,056,858. All the States produce some form of clay products.

The value of common brick produced in 1912 was $51,786,266. The vitrified brick was valued at $10,931,575. Common brick is the most widely distributed of clay products. New York is the largest producer of common brick with Illinois second and Pennsylvania third.

The total value of pottery bricks in the United States in 1912 was $36,504,164, with 434 plants in operation during the year. This was the largest value ever reported in any one year. Every product except stoneware and yellow and Rockingham ware showed an increase in 1912. The most important variety of pottery was white earthenware, the value of which in 1912 was $14,829,431. Ohio ranked first in the production of pottery, with the total value in 1912 of $15,508,735. New Jersey ranked second with the value of $8,935,920; West Virginia third, with the value of $3,165,366; New York fourth, with the value of 2,405,532. The pottery imported in the United States in 1912 was valued at $9,555,530.

CLIMATE. See METEOROLOGY.

CLOAK AND SUIT INDUSTRY. See ARBITRATION AND CONCILIATION, INDUSTRIAL.

CLOTHING STRIKE. See STRIKES.

COAL. The production of coal in the United States in 1912 not only surpassed all previous tonnage records, but the average value per ton exceeded that of any normal year in the 33 years in which statistics are available. The total amount of coal produced in the United States in 1912 was 534,466,580 short tons, valued at $695,606,071; compared with 496,371,126 short tons, valued at $626,565,211 in 1911, a gain in quantity of 38,095,454 short tons, and in value of $69,040,860. The increase in tonnage was entirely in the production of bituminous coal. The output of anthracite in Pennsylvania decreased from 80,771,488 long tons to 75,322,855 long tons, while the production of bituminous coal increased to 405,907,059 in 1912. The decreased production of anthracite in Pennsylvania was due entirely to the suspension of April and May, when practically the entire region was idle. Except for that period, the output of anthracite would undoubtedly have amounted to about 85,000,000 long tons or about 4,000,000 tons more than in 1911, the year of the greatest output. The factors which contributed to the increased output of bituminous coal were first, the revival of iron and steel industry, which stimulated production in the eastern States; second, the bumper crops of grain and other agricultural products which gave prosperity to the farming communities of the Middle West; third, the decreasing supplies of natural gas and fuel light in the mid-continent field, which have removed that competition from coal in the southwestern States; fourth, increased consumption by railroads, and in nearly all lines of manufacturing; fifth, activity in the mining and smelting of the precious and semi-precious metals in the Rocky Mountains and Pacific States. In spite of the increased production, there were fewer men employed in the bituminous mines in 1912 than in 1911. In some places this labor shortage was due to the migration of miners on account of the Balkan war.

In 1912 coal was produced commercially in 30 States and in the Territory of Alaska. The table below, taken from the report of the United States Geological Survey, shows the coal production in the different States of the Union in 1911 and 1912.

MEN EMPLOYED. The total number of men employed in the coal mines in 1912 was 722,662, compared with 722,360 in 1911. The anthracite mines gave employment to 174,030 men, compared with 172,585 in 1911. In the bituminous mines 548,632 men were employed, compared with 549,775 in 1911. The average production per man in bituminous mines increased from 738 tons in 1911 to 820 tons in 1912. This was the highest average ever made. In the anthracite mines, the average yearly production of each employe was 484.8 tons in 1912, compared with 524 tons in 1911.

ACCIDENTS. Statistics compiled by the United States Bureau of Mines show that there was a marked decrease in the number of fatal accidents in the coal mines of the United States in 1912, as compared with fatal accidents in 1911-10. In 1912 the fatalities numbered 2360, compared with 2719 in 1911, and 2840 in 1910. Of the fatal accidents which occurred in 1912, 584 were in the anthracite mines of Pennsylvania, and 1776 in the bituminous and lignite mines of the country. As usual, the chief cause of death was falls of roof and coal; the deaths from that cause numbering 1451. There was a notable decrease in the number of fatalities due to explosions of gas and dust—from 371 in 1911 to 301 in 1912. The most serious explosion of gas in 1912 was in Oklahoma, where 73 men were killed in one disaster. In West Virginia were recorded the largest number of men killed by explosions of dust. These numbered 81. The death rate for 1000 employes in the anthracite region was 3.35. In the bituminous regions 3.24, and for the entire country, 3.38.

	1912		1911	
State	Quantity	Value	Quantity	Value
Alabama	16,100,600	$ 20,829,252	15,021,421	$ 19,079,949
Arkansas	2,100,819	3,582,789	2,106,789	3,396,849
California and Alaska	11,333	26,441	11,647	23,297
Colorado	10,977,824	16,345,336	10,157,383	14,747,764
Georgia and North Carolina	227,703	338,926	165,330	246,448
Idaho and Nevada	2,964	9,318	1,821	4,872
Illinois	59,885,226	70,294,338	53,679,118	59,519,478
Indiana	15,285,718	17,480,546	14,201,355	15,326,808
Iowa	7,289,529	13,152,088	7,331,648	12,663,507
Kansas	6,986,182	11,324,130	6,178,728	9,473,572
Kentucky	16,490,521	16,854,207	14,049,703	14,008,458
Maryland	4,964,038	5,839,079	4,685,795	5,197,066
Michigan	1,206,230	2,399,451	1,476,074	2,791,461
Missouri	4,339,856	7,633,864	3,836,107	6,603,066
Montana	3,048,495	5,558,195	2,976,358	5,342,168
New Mexico	3,536,824	5,037,051	3,148,158	4,525,925
North Dakota	499,480	765,105	502,628	720,489
Ohio	34,528,727	37,083,363	30,759,986	31,810,123
Oklahoma	3,675,418	7,867,331	3,074,242	6,291,494
Oregon	41,637	108,276	46,661	108,033
Pennsylvania, bituminous	161,865,488	169,370,497	144,561,257	146,154,952
Tennessee	6,473,228	7,379,908	6,433,156	7,209,734
Texas	2,188,612	3,655,744	1,974,593	3,273,288
Utah	3,016,149	5,046,451	2,513,175	4,248,666
Virginia	7,846,638	7,518,576	6,864,667	6,254,804
Washington	3,360,932	8,042,871	3,572,815	8,174,170
West Virginia	66,786,687	62,792,234	59,831,580	53,670,515
Wyoming	7,368,124	11,648,088	6,744,864	10,508,863
Total bituminous	450,104,982	517,983,445	405,907,059	451,375,819
Pennsylvania anthracite	84,361,598	177,622,626	90,464,067	175,189,392
Grand total	534,466,580	$695,606,071	496,371,126	$626,565,211

Labor Troubles. The second three-year extension of the awards of the anthracite Coal Strike Commission terminated March 31, 1912. There was a determination on the part of the miners to suspend work until certain modifications in the agreements were made. In consequence mining in the anthracite region was practically at a standstill from April 1 to May 15. It was nearly the first of June before the mines were in full operation. When mining was resumed in May, 1912, an additional advance of 10 per cent. in wages had been granted. In the anthracite region there were 151,958 men idle for an average of 45 days, and in the bituminous district the total number of men idle was 159,098, and the average time lost by each man was 35 days. With one exception, the labor disputes were not accompanied by disorder or bloodshed. This was the Paint and Cabin Creek mines of the Kanawha district of West Virginia, where for more than a year a condition bordering on warfare prevailed. (See Strikes.)

World Production. The world production of coal at the latest dates available is shown in the table below.

1913 Production. The coal production of the United States in 1913, according to the estimates of the United States Geological Survey was between 565,000,000 and 575,000,000 short tons, an increase over the record-breaking production of 1912 of from 30,000,000 to 40,000,000 tons. The coal-mining industry during the year was normal and lacked any spectacular features. Of the increase, about 4,500,000 tons was in the production of anthracite and the rest in the production of bituminous coal mines. There were a few labor disturbances in 1913, but they were local in extent and effect. The most pronounced disaffection was in Illinois, where a general strike was called about the middle of September, and coal production in that State during the last quarter of the year was but little more than 50 per cent. of normal. There was general complaint particularly in the eastern States of a shortage of labor and inability on the part of operators to keep their mines working at full capacity. Coal mining, like all other industries in the Ohio Valley States was seriously interfered with by the flood in that region during the spring of 1913. The continued decrease in the production of fuel oil in the mid-continent field and the tract in the Colorado gold mines resulted in an increased output of coal in the southwestern States.

COAL MINERS. See Arbitration and Conciliation, Industrial.

COAL RESOURCES. See Geology.

COAST FORTIFICATIONS. See United States, *Army*.

COATS, Sir James. A Scotch linen manu-

Countries		Usual unit in producing country	Equivalent in short tons
United States (1912)	long tons	477,202,303	534,466,580
Great Britain (1912)	do	260,416,338	291,666,299
Germany (1912)	metric tons	259,434,500	285,974,649
Austria-Hungary (1911) [a]	do	49,859,655	54,960,298
France (1911)	do	39,229,591	43,242,778
Russia and Finland (1911)	do	26,636,818	29,361,764
Belgium (1911)	do	23,053,540	25,411,917
Japan (1911)	do	17,632,710	19,436,536
China (1911)	do	15,000,000	16,534,500
India (1911)	long tons	12,048,726	13,494,573
Canada (1911)	short tons	11,323,388	11,323,388
New South Wales (1911)	long tons	8,691,604	9,734,596
Spain (1910)	metric tons	4,057,532	4,472,618
Transvaal (1911)	long tons	3,878,286	4,343,680
Natal (1911)	do	2,392,456	2,679,551
New Zealand (1910)	do	2,197,362	2,461,045
Mexico (1910)	metric tons	1,500,000	1,653,450
Holland (1911)	do	1,477,000	1,628,097
Asiatic Russia (1910)	do	1,244,000	1,371,261
Chili (1911)	do	1,158,660	1,277,191
Queensland (1911)	long tons	891,568	998,556
Bosnia and Herzegovina (1911)	metric tons	769,763	848,510
Turkey (1911)	do	725,000	799,168
Victoria (1911)	long tons	653.864	732,328
Italy (1911)	metric tons	557,137	614,132
Dutch East Indies (1910)	do	535,226	589,980
Indo-China (1910)	do	498,551	549,553
Orange Free State (Orange River Colony) (1911)	long tons	430,973	482.690
Sweden (1911)	metric tons	311,809	343,707
Peru (1910)	do	307,320	338,759
Servia (1910)	do	276,815	305,133
Western Australia (1910)	long tons	262.166	293,626
Formosa (1911)	metric tons	254,921	280,999
Bulgaria 1909)	do	227,362	250,621
British Borneo (1910)	long tons	171,366	191,930
Rhodesia (1910)	do	160.775	180.068
Rumania (1907-1908)	metric tons	160,783	177,231
Corea (1911)	do	123,668	136,319
Tasmania (1910)	long tons	82.455	92,350
Cape Colony (Cape of Good Hope) (1911)	do	79,476	89,013
Spitzberger (1911)	metric tons	40,000	44,092
Brazil (1910)	do	15,000	16,535
Venezuela (1906)	do	14,064	15,503
Portugal (1910)	do	8,149	8,983
Philippine Islands (1912)	do	2,720	2,998
Switzerland	do	2,500	2,756
Greece (1910)	do	1,500	1,653
Unspecified	long tons	50,000	56,000
Total		....	1,363,937,964
Percentage of the United States		....	39

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[a] Production of coal in Austria in 1912 amounted to 42,078,124 metric tons; 1912 figures for Hungary not available.

facturer, died January 17, 1913. He was born in 1834 and became, while still a young man, a director of J. & P. Coats. At the time of the Civil War, he took up his residence in New York, as America offered the best market for his product at the time. He returned to Scotland, but shortly afterwards removed again to the United States, where in Providence, R. I., and in Pawtucket, he erected many large mills, until an enormous plant was developed. In 1901 he returned to Scotland, but retained his directorship in the companies of which he was the head, until his death.

COCAINE AND MORPHINE HABIT. Wilbert and Motter made careful research into the laws in several States having to do with the sale of opium, cocaine, and other narcotics. They found that, although in most States there existed laws which aimed to abolish drug addiction, there was a most extraordinary difference in the character and method of enforcement, in different parts of the country, of such laws. In some States the anti-narcotic enactments were so stringent and comprehensive as to make enforcement impracticable, while in other States the exceptions and provisos to the law resulted in its practical nullification. It was shown conclusively that the illegitimate use of opium and cocaine was steadily increasing and that lack of Federal control was the chief reason why the United States compared so unfavorably with European countries in the matter of drug addiction. Opium and its alkaloids were first separately enumerated in the tariff schedules in 1890, since which time there had been an increase of 351 per cent. in the amount of opium imported, as against an increase of 133 per cent. in population. Over 400,000 pounds of opium entered the United States annually during the last ten years. This amount is the more notable because it was stated, on reliable authority, that only one-eighth of this quantity was needed for medical purposes. Of the 300,000 pounds of morphine it was estimated that 80 per cent. was used by habitués. Austria-Hungary, with half the population of the United States, used only one-hundredth the amount of opium; and Germany, with sixty millions of inhabitants, consumed only 17,000 pounds. Italy used annually only 6000 pounds, with a population of thirty-three millions. The situation with regard to cocaine was equally serious. This drug was introduced in 1884. It is estimated that 150,000 ounces were used by habitués every year. (See Wilbert and Motter: "Digest of Laws and Regulations in Force in the United States Relating to the Possession, Use, Sale and Manufacture of Poisons and Habit-Forming Drugs," *Public Health Bulletin No. 56.)*

A new cocaine bill was passed by the New York legislature in 1913, and its provisions were believed to be drastic enough to suppress the illegal traffic in that State. The bill made the illegal sale of the drug a felony, with a penalty of seven years' imprisonment. The possession of and traffic in flake cocaine were prohibited, and the drug was required to be traced from manufacturers to the druggist. The bill also limited the character of prescriptions which physicians may give, and prescribing the drug in crystalline form was prohibited. Furthermore, all druggists, physicians, and veterinarians must record their purchases and sales or disposition of cocaine, and drug stores were limited to the possession of five ounces at one time.

COCHIN-CHINA. One of the states (the southernmost) of the French colony of Indo-China (q.v.). The well-watered soil possesses a high degree of fertility; but the climate is well-nigh unsupportable, not so much on account of extreme heat as because the atmosphere remains saturated even through the dry season by evaporation from the numerous streams and pools. Rice is the main crop and constitutes 70 per cent. of the exports. The cultivation of pepper has developed in recent years. Irrigation and drainage are practiced. There is a cement factory, and the Chinese make pottery and bricks. Stock-raising and fishing are important. The trade is included with that of French Indo-China. The local budget for 1912 balanced at 7,321,817 piasters. The governor in 1913 was J. M. Gourbeil. The capital in Saigon. For history, see FRENCH INDO-CHINA.

COCHRANE, HENRY CLAY. An American soldier, died April 27, 1913. He was born in Chester, Pa., in 1842. In 1861 he was appointed to the United States naval service and served throughout the Civil War. He served also in the Spanish-American War, the Boxer campaign in China in 1900, and the campaign in the Philippine Islands. In 1900-01 he was governor of the province of Manzanillo, Philippine Islands. A regiment of marines in the Boxer War was under his command. He retired with the rank of brigadier-general in 1905.

COCOSE. See DAIRYING.

COINAGE. See UNITED STATES.

COINS, FOREIGN, VALUE OF. Following is the value of foreign coins in currency of the United States on December 31, 1913:

Country	Legal standard	Monetary unit	Value in terms of U.S. money	(a) Remarks
Argentine Republic..	Gold............	Peso....................	$0.9647	Currency: Depreciated paper, convertible at 44 per cent. of face value.
Austria-Hungary....	Gold............	Crown..................	.203	
Belgium............	Gold and silver..	Franc..................	.193	Member of Latin Union; gold is the actual standard.
Bolivia..............	Gold............	Boliviano..............	.389	12½ bolivianos equal 1 pound sterling.
Brazil...............	Gold............	Milreis................	.546	Currency: Government paper, convertible at $0.3242 to the milreis.
British colonies in Australasia and Africa	Gold............	Pound sterling.........	4.8665	
Canada..............	Gold............	Dollar.................	1.000	

Country	Legal standard	Monetary unit		Value in terms of U. S. money	(a) Remarks
Central American states:					
Costa Rica	Gold	Colon		.465	
British Honduras	Gold	Dollar		1.000	
Nicaragua	Gold	Cordova		1.000	
Guatemala	Silver	Peso		.434	Guatemala: Currency, inconvertible paper, exchange rate 16 to 18 pesos=$1.00.
Honduras					Honduras: Currency, bank notes, exchange rate March 20, 1912, $0.415.
Salvador					Salvador: Currency, convertible into silver on demand.
Chile	Gold	Peso		.365	Currency: Inconvertible paper, exchange rate, approximately, $0.2061.
China	Silver	Tael	Amoy	.711	
			Canton	.709	
			Cheefoo	.679	
			Chin Kiang	.694	
			Fuchau	.657	
			Kaikwan (Customs).	.723	
			Hankow	.665	
			Kiaochow	.689	
			Nanking	.704	
			Niuchwang	.667	
			Ningpo	.683	
			Peking	.693	
			Shanghai	.649	
			Swatow	.657	
			Takau	.715	
			Tientsin	.689	
		Dollar.	Yuan	.518	
		Dollar.	Hongkong	.467	
			British	.467	
			Mexican	.471	
Colombia	Gold	Dollar		1.000	Currency: Inconvertible paper; exchange rate, approximately, $102 paper to $1 gold.
Denmark	Gold	Crown		.268	
Ecuador	Gold	Sucre		.487	
Egypt	Gold	Pound (100 piasters)		4.943	The actual standard is the British pound sterling, which is legal tender for 97½ piasters.
Finland	Gold	Mark		.193	
France	Gold and silver.	Franc		.193	Member of Latin Union; gold is the actual standard.
German Empire	Gold	Mark		.238	
Great Britain	Gold	Pound sterling		4.8665	
Greece	Gold and silver.	Drachma		.193	Member of Latin Union; gold is the actual standard.
Haiti	Gold	Gourde		.965	Currency: Inconvertible paper; exchange rate, approximately, $0.2941.
India [British]	Gold	Rupee		.3244⅓	(15 rupees equal 1 pound sterling.
Italy	Gold and silver.	Lira		.193	Member of Latin Union; gold is the actual standard.
Japan	Gold	Yen		.498	
Liberia	Gold	Dollar		1.000	Currency: Depreciated silver token coins. Customs duties are collected in gold.
Mexico	Gold	Peso		.498	Mexican exchange rate fluctuating and uncertain.
Netherlands	Gold	Florin		.402	
Newfoundland	Gold	Dollar		1.014	
Norway	Gold	Crown		.268	
Panama	Gold	Balboa		1.000	
Paraguay	Silver	Peso		.434	Currency: Depreciated paper, exchange rate 1,550 per cent.
Persia	Gold and silver.	Kran		.1704	This is the value of the gold kran. Currency is silver circulating above its metallic value; exchange value of silver kran, approximately, $0.0875.
Peru	Gold	Libra		4.8665	
Philippine Islands	Gold	Peso		.500	
Portugal	Gold	Escudo		1.080	Currency: Inconvertible paper; exchange rate, approximately, $0.9394.
Rumania	Gold	Leu		.193	
Russia	Gold	Ruble		.515	
Santo Domingo	Gold	Dollar		1.000	
Servia	Gold	Dinar		.193	
Siam	Gold	Tical		.3708	
Spain	Gold and silver.	Peseta		.193	Valuation is for the gold peseta; currency is silver circulating above its metallic value, approximately, $0.1794.
Straits Settlements	Gold	Dollar		.5677	

Country	Legal standard	Monetary unit	Value in terms of U. S. money	(a) Remarks
Sweden	Gold	Crown	.268	
Switzerland	Gold	Franc	.193	Member of Latin Union; gold is the actual standard.
Turkey	Gold	Piaster	.044	100 piasters equal to the Turkish £.
Uruguay	Gold	Peso	1.034	
Venezuela	Gold	Bolivar	.193	

a The exchange rates shown under this heading are recent quotations and are given as an indication of the values of currencies which are fluctuating in their relation to the legal standard. They are not to take the place of the Consular certificate where it is advisable.

COKE. The most significant feature of the coke making industry in 1912 as in 1911 was the progress shown in the construction of retort or by-product ovens, and the increase in the production of retort-oven coke. The number of retort ovens in operation increased from 4624 in 1911 to 5211 in 1912, a gain of 587; whereas the total number of all ovens decreased from 103,879 to 102,230.

The quantity of coke manufactured in 1912 amounted to 43,983,599 short tons, valued at $111,736,696. The production for 1913 was estimated at 45,328,900 tons. The 1912 production was an increase of 8,432,110 short tons, or 23.7 per cent. in quantity, and of $27,605,874 or 32.8 per cent. in value over 1911. The quantity of coal consumed in the manufacture of coke in 1912 was 65,577,862 short tons, valued at $86,918,962. Of the 43,983,589 short tons of coke made in 1912, 32,868,435 tons were beehive or oven coke, valued at $69,103,776, and 11,115,164 tons valued at $42,632,930 were retort or by-product coke. The average price per ton for oven coke in 1912 was $2.10 against $2.05 in 1911. The average price for retort coke was $3.84 in 1912 as compared with $3.48 in 1911. The total number of coke making establishments in 1912 was 559, compared with 570 in 1911.

Nearly all the States producing coke in 1912 showed an increased production. The quantities of increase ranged from 5605 tons in Georgia, to 5,514,758 tons in Pennsylvania. The largest percentage of increase was in Kentucky, the output in 1912 being nearly 190 per cent. more than in 1911. Pennsylvania ranked first in the production, with 27,438,693 tons. Alabama second, with 2,975,489, and Indiana third, with 2,616,339. In 1912 Indiana took the place of West Virginia as the third largest producing State. Other States producing in large quantities were Illinois, Colorado, Virginia, New York, Wisconsin, and Massachusetts. The following table shows the production of coke in the different States in 1911 and 1912:

1911

State	Establishments	Ovens Built	Ovens Building	Coal used (short tons)	Yield of coal in coke (per cent.)	Coke produced (short tons)	Total value of coke	Price of coke per ton
Alabama	44	10,121	280	4,411,298	62.6	2,761,521	$ 7,593,594	$2.75
Colorado *a*	16	3,606	0	1,810,335	65.0	1,177,023	3,880,710	3.30
Georgia	2	225	0	72,677	51.7	37,553	135,190	3.60
Illinois	4	506	48	2,087,870	77.1	1,610,212	6,390,251	3.97
Kentucky	8	577	300	118,255	55.9	66,099	134,862	2.04
New Mexico	4	1,030	0	620,639	61.5	381,927	1,240,963	3.25
New York	4	556	0	955,067	71.8	686,172	2,883,990	4.20
Ohio	8	496	0	456,222	68.2	311,382	961,904	3.09
Pennsylvania	279	54,904	1,271	32,875,655	66.7	21,923,935	43,053,367	1.96
Tennessee	15	2,547	30	628,118	52.6	330,418	797,758	2.41
Utah	2	354	0	(*b*)	(*b*)	(*b*)	(*b*)	.....
Virginia	18	5,496	100	1,425,308	63.9	910,411	1,615,609	1.77
Washington	5	235	0	60,201	66.6	40,180	216,262	5.38
West Virginia	138	19,876	130	3,754,561	60.4	2,291,049	4,236,845	1.85
Indiana Kansas Maryland Massachusetts Michigan Minnesota Montana New Jersey Oklahoma Wisconsin	23	2,850	95	4,002,047	75.6	3,023,607	10,989,544	3.63
Total	570	103,879	2,254	53,278,248	66.7	35,551,489	84,130,849	2.37

1912

State	Establishments	Ovens Built	Ovens Building	Coal used (short tons)	Yield of coal in coke (per cent.)	Coke produced (short tons)	Total value of coke	Price of coke per ton
Alabama	46	10,208	100	4,585,498	64.9	2,975,489	$8,098,412	$2.72
Colorado	15	3,588	0	1,473,112	66.0	972,941	3,043,994	3.13
Georgia	2	251	0	87,300	50.0	43,158	161,842	3.75
Illinois	6	594	40	2,316,307	76.2	1,764,944	8,069,903	4.57
Indiana	4	642	169	3,198,874	81.8	2,616,339	12,528,685	4.79
Kentucky	9	1,049	291	307,162	62.4	191,555	513,734	2.68
Montana	4	451	3	0	0	0	0	0
New Mexico	4	1,030	0	679,209	60.9	413,906	1,356,946	3.28
New York	4	555	0	1,095,198	72.6	794,618	3,203,133	4.03
Ohio	7	471	119	561,426	69.2	388,669	1,365,905	3.51
Oklahoma	2	260	0	0	0	0	0	0
Pennsylvania	277	53,756	1,887	41,268,532	66.5	27,438,693	56,267,838	2.05
Tennessee	15	2,584	0	685,861	54.0	370,076	951,853	2.57
Virginia	18	5,408	0	1,555,969	62.2	967,947	1,815,975	1.88

State	Establishments	Ovens Built	Ovens Building	Coal used (short tons)	Yield of coal in coke (per cent.)	Coke produced (short tons)	Total value of coke	Price of coke per ton
Washington	6	313	0	78,693	62.6	49,260	279,105	5.67
West Virginia	129	19,064	0	4,061,702	60.7	2.465,986	4,692,393	1.90
Kansas	11	2,006	174	3,623,019	69.8	2,530.018	9,386,978	3.71
Maryland								
Massachusetts								
Michigan								
Minnesota								
New Jersey								
Utah								
Wisconsin								
Total	559	102,230	2,783	65,577,862	67.1	43,983,599	111,736,696	2.54

[a] Includes production of Utah.

[b] Production included with Colorado.

The total amount of coke imported in the United States in 1912 was 123,614 short tons, valued at $488,398. There were exported 912,576 short tons, valued at $3,002,742. The imports in 1911 were 77,923 short tons, valued at $254,455, and the exports 1,023,727 short tons, valued at $3,215,990.

COLD STORAGE. See FOOD AND NUTRITION, MEAT PRODUCTION, and STOCK-RAISING.

COLE, AARON HODGMAN.. An American biologist, author, and educator, died December 31, 1913. He was born in Greenwich, N. Y., in 1856, and graduated from Colgate University in 1889. He took post-graduate studies at Johns Hopkins University and the University of Chicago. In 1893 he was appointed lecturer in zoology at Cold Spring Harbor Biological Laboratory, and from 1895-6 was lecturer of biology in the University of Chicago Extension Division. From the latter year until his death he was instructor of biology in the Chicago Teachers' College. In addition to his work at these universities and colleges, he was from 1895 a popular lecturer on bacteriology. He developed many improvements in methods of showing microscopic objects in highly magnified form on screens, in connection with his lectures. He was also successful in producing anæsthesia in animals used in a live state for zoölogical laboratory studies and when photographed. He wrote considerably for scientific journals, and was the author of *Manual of Biological Projection and Anæsthesia of Animals* (1907).

COLGATE UNIVERSITY. An institution of higher education, founded at Hamilton, N. Y., in 1819. The students enrolled in all departments in the college were 200. The faculty numbered 46. An associate professor of economics was appointed in 1913, and there were other additions to the faculty. There were no noteworthy benefactions received during the year. The productive funds of the college amount to about $2,000,000 and the income to about $150,000. The library contains about 61,000 volumes. The president is Elmer Burritt Bryan.

COLLEGES. See UNIVERSITIES AND COLLEGES.

COLLEGES, AGRICULTURAL. See AGRICULTURAL EDUCATION.

COLLIER, PRICE. An American writer, died November 3, 1913. He was born in 1860, and received his early education in Geneva, Switzerland, and Leipzig, Germany. In 1882 he graduated from Harvard University, and later he entered the ministry of the Unitarian Church. During the Spanish-American war he acted as an officer in the United States navy. Most of his later years were spent in traveling and writing. He devoted himself especially to the study of European countries and their problems. The result of these studies is: *England and the English from an American Point of View* (1909); *The West and the East from an American Point of View* (1911); *Germany and the Germans* (1912). The books on England and Germany are notable for their frankness and acumen. Mr. Collier died in Copenhagen, while engaged in collecting material for a book on Scandinavia. In addition to the books mentioned above, he published a volume of essays entitled *Mr. Picket Pin and his Friends; America and the Americans from a French Point of View;* and *A Parish of Two* (1903). He also contributed to magazines and periodicals.

COLLISIONS. See RAILWAY ACCIDENTS.

COLOMBIA. A northwestern republic of South America. The capital is Bogotá.

AREA, POPULATION, ETC. The population by departments, etc., according to the census of March 5, 1912, is as follows:

	Sq. km.	Pop.	Capitals
Departments:			
Antioquia	72,000	740,937	Medellín
Atlántico	2,600	114,887	Barranquilla
Bolivar	66,865	420,730	Cartagena
Boyacá	8,630	586,499	Tunja
Caldas	8,500	341,198	Manizales
Cauca	24,975	211,756	Popayán
Cundinamarca	22,350	713,968	Bogotá
Huila	23,000	158,191	Neiva
Magdalena	49,400	149,547	Santa Marta
Nariño	30,000	292,535	Pasto
Norte de Santander	20,000	204,381	Cúcuta
Santander	44,270	400,084	Bucaramanga
Tolima	23,800	282,426	Ibaqué
Valle del Cauca	28,000	217,159	Cali
Intendencies:			
Meta	......	29,309	Villa Vicencio
Chocó	......	68,127	Quibdó
Commissaries:			
La Goajira	......	53,018	Puerto Estrella
Arauca	......	4,922	Arauca
Caquetá	......	24,548	Florencia
Putumayo	......	31,380	Mocoa
Vaupés	......	5,545	Calamar
Urabá	......	6,476	Acandí
Juradó	......	8,207	Pizarro
Lazarettos	......	6,793	
Colombia	1,206,200	5,072,604	Bogotá

The figures given above for the departmental area are only approximate. The total area is unknown and it cannot even be calculated with any degree of accuracy on account of the unsettled boundaries in the southeast; the boundary with Brazil is still undefined, and a considerable region is claimed not only by Colombia but by both Ecuador and Peru. This region includes the Putumayo district, notorious for the atrocities inflicted on the native rubber gatherers; and in attempting to force Peru to end these atrocities the United States and Great Britain evidently recognized the Peruvian claim to the territory. The total area given in the table above, 1,206,200 square kilometers, corresponds to 465,700 square miles; another estimate, probably more nearly accurate, is 435,100 square miles. The total population as returned by the census of 1912 was 5,472,604; but this figure includes an estimate of 400,000 for Panama, whose independence Colombia has not recognized. On the other hand, it does not include a considerable number of uncivilized Indians; their number is quite unknown, but has been surmised to be about 30,000. The larger towns, according to the 1912 census, include the following (the figures relate to *municipios*, that is, districts which are organized for municipal purposes and which usually include a rather extended rural area): Bogotá, 121,257; Medellín, 71,004; Barranquilla, 48,907; Cartagena, 36,632; Manizales, 34,720; Sonsón, 29,346; Pasto, 27,760; Cali, 27,747; Aguadas, 26,423; Ibagué, 24,693; Palmira, 24,312; Neiva, 21,852; Montería, 21,521; Yarumal, 21,250; Cúcuta, 20,364; Bucaramanga, 19,735; Miraflores (Boyacá), 19,150; Lorica, 19,005; Popayán, 18,724; Cartago, 18,618; Pereira, 18,428; Andes, 18,391; Salamina, 18,195; Fredonia, 18,176; Bolívar (Cauca), 17,738; Abejorral, 17,508; Santa Rosa de Cabal, 17,009. Ocaña, 16,814; Ríosucio, 16,506; Carmen, 16,332; Espinal, 16,274; Líbano, 16,186; Sabanalarga, 16,042; Quibdó, 15,756.

Primary instruction is gratuitous, but not compulsory. Number of primary schools reported, 4075, with 292,058 pupils. Secondary education is directed largely by the religious orders. There are over 20 normal schools and a few establishments for professional education. The state religion is Roman Catholicism.

INDUSTRIES AND COMMERCE. Agriculture and mining are both important in the economic development of Colombia, and in some parts of the country cattle-raisng is a large and profitable industry. The leading products of the soil include bananas, coffee, cacao, sugar-cane, cotton, tobacco, rubber, and cereals. The mineral resources are large, especially in Antioquia, including gold, copper, lead, zinc, mercury, iron, platinum, salt, and emeralds. Manufactures, except Panama hats, are little developed.

Imports nd exports have been valued as follows:

	1909	1910	1911	1912
Imps..	$12,117,927	$17,025,637	$18,108,863	$23,964,623
Exps..	16,040,198	17,625,153	23,375,900	32,221,746

Leading imports in 1912: Textiles, $10,547,134; foodstuffs and condiments, $3,054,953; metals, $2,916,925; railway cars, wagons, carriages, etc., $1,031,711; drugs and medicines, $838,349; liquors and other beverages, $835,772. The principal exports in 1911 and 1912 respectively were: Coffee, $9,475,449 and $16,777,908; bananas, $2,172,000 and $1,996,999; gold in bars and gold dust, $3,751,632 and $4,610,073; cattle hides $1,779,790 and $2,261,722; Panama hats, $1,088,821 and $1,174,641; rubber, $900,887 and $736,427; ivory nuts, $739,419 and $754,708; platinum, $345,897 and $594,188; leaf tobacco, $332,935 and $442,461.

Trade by countries, in thousands of dollars:

	Imports		Exports	
	1911	1912	1911	1912
United Kingdom....	5.839	7,839	4.596	4,376
United States.......	5.405	7,612	12,249	15.838
Germany	3,243	4,201	1,910	1,854
France	....	597	769	625
Italy	....	571	.....	.....
Belgium	398	477	.....	.....
Spain	....	83	120	303
Total, incl. others	18,109	23,965	22,376	32,222

In 1912 the port of Barranquilla received imports and sent exports to the value of $12,445,532 and $12,231,609 respectively; Cartagena, $5,084,307 and $6,665,159; Buenaventura, $3,839,771 and $1,342,967; Tumaco, $1,171,373 and $1,417,153; Cúcuta, $768,468 and $2,992,918; Ríohacha, $68,690 and $4,861,512.

COMMUNICATIONS. The railways form no continuous system, but consist of various short lines engaged in local traffic. Recent statistics are not available; the total length in operation at the end of 1911 was reported at 1000 kilometers. There was some railway construction during 1912 and 1913. Telegraphs, over 19,000 kilometers of lines; post offices, over 600.

FINANCE. The gold dollar, or peso, is equivalent to the United States dollar, the silver peso fluctuates with the price of silver, and the paper peso is legally current at one cent. Budgets have been as follows: 1910, revenue $10,831,500 and expenditure $10,831,500; 1911, $12,685,119 and $12,685,119; 1912, $12,043,145 and $12,500,000; 1913, $14,070,654 and $14,060,294. Of the estimated revenue for 1913, customs were credited with $10,050,370. The larger estimated expenditures were for war, $3,285,032; public debt, $3,015,986; interior, $1,294,572; finances, $1,063,432; and justice, $1,039,999. Public debt: Foreign consolidated (January 1, 1912), £2,486,000 (in addition, guarantee railway debts amounting to £1,469,400); internal (July 1, 1912), 5,476,888 pesos silver; floating, $2,756,545. In addition, there is an enormous outstanding paper currency.

ARMY. Nominally military service is compulsory under the laws of 1897 and 1911, but is not enforced, and a force consisting of about 350 officers, 159 officials, 218 musicians, and 5500 men is the peace effective strength which, in time of war, it was estimated could be raised to a force of 50,000 men. The troops consist of 12 regiments of infantry, three divisions of cavalry, three divisions of artillery each with two four-gun batteries, one battalion of engineers, and one battalion of train. The military school, with a course of four years, is maintained for officers at Bogotá.

GOVERNMENT. The executive authority is vested in a president, who is elected by the Congress for a term of four years and is assisted by a cabinet of seven ministers. The Congress consists of the Senate (35 members, elected indirectly for four years) and the House of Representatives (92 members, elected for four years by direct vote). The president in 1913 was Carlos E. Restrepo, who was inaugurated, August 7, 1910. The Congress annually elects two *designados* (vice-presidents); in the autumn of 1913 it reëlected Marco Fidel Suárez as first *designado* and elected Jorge Holguín as second.

HISTORY. The National Congress opened its session on July 20, the anniversary of independence. and elected the following officers: president of the Senate, Dr. José Vicente Costa; president of the House, General Marcelino Velez; first *designado* to the presidency, Sr. Jorge Holguín. Three subjects of primary importance confronted the Congress: the budget, oil and bank concessions, and relations with the United States. The budget as presented in the message of President Restrepo, covered an expenditure of $16,115,000 with a surplus of $385,000. It included the increased salary of the president, now $18,000, instead of $9,600. The disapproval by Congress of a proposed new tariff made it impossible to settle the financial arrangements for the year.

Great interest centred in the oil sessions granted tentatively by the government to a British syndicate, S. Pearson and Son, Ltd. The contract arranged by Lord Murray of Elibank, who represented the Pearson company, had as its object the development of the petroleum industry in Colombia; but its terms were so liberal that, in the United States at least, many fears were expressed lest the British firm should be allowed to gain a monoply of Colombian oil-fields. It was alleged also that the British *concessionaires*, possessing the right to construct and operate railroads, to build wharves, to establish communications, and to take up lands (not to exceed 10,000 square kilometers) anywhere in the republic, might establish a line of communications that would compete with the Panama Canal in interoceanic traffic. The Colombian Congress delayed its approval of the concession, and late in November, Lord Murray withdrew his proposals, probably on account of adverse American criticism. Nevertheless, a contract was entered into between the government and Pearson and Son for a survey of the port of Buenaventura on the Pacific coast, with a view to harbor improvements; and it was prophesied that the projected concession would be revived in 1914.

The third centre of interest was the long-standing dispute with the United States over the independence of Panama. The United States had never been forgiven for recognizing the independence of that insurgent province; and an almost undiminished bitterness of resentment was shown when the Colombian Congress met on November 4, 1913 (the decennial anniversary of Panama's declaration of independence) and unanimously adopted a resolution affirming the imprescriptibility of Colombia's isthmian rights. It was added, that Colombia would welcome a sincere proposal for an amicable and honorable settlement of her claims. As to what that settlement might be, opinion differed. *La Tribuna*, a leading Bogotá journal, laid down five indispensable conditions for such an adjustment: (1) the rendition of moral satisfaction or reparation to Colombia by the United States; (2) the imposition of identical conditions upon American and Colombian shipping in the canal; (3) the establishment of a line between Colombia and Panama, as in 1855; (4) the payment of $20,000,000 for Colombia's rights in the Panama Railway; (5) the establishment of friendly relations between the two republics. That such conditions would ever be granted by the United States seemed highly improbable. In Colombia, however, a spirit of bitter defiance was dominant. It was very well expressed in the fact that Colombia's consuls were forbidden to take part in any receptions given to ex-President Roosevelt on his South-American trip.

Several occurrences of minor interest deserve mention. A new fiscal code was published in the *Official Gazette* of March 4, 1913, a penal colony was established in Magdalena, the government had under discussion measures to encourage immigration. By the authorization of Congress, the government appointed a commission to begin the survey for a railway between the Putumayo River and the Pacific Ocean. Authorization was also granted for a railway connecting the Magdalena River with the town of San José de Cúcuta, in the department of Santander, thus completing the transcontinental chain of river and railway connections.

COLON. See PANAMA CANAL.

COLORADO. POPULATION. The population of the State in 1910 was 799,024. According to the report of the Bureau of the Census, made in 1913, the population was 883,276.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are estimates only:

		Acreage	Prod. Bu.	Value
Corn	1913	420,000	6,300,000	$4,599,000
	1912	420,000	8,736,000	4,368,000
Wheat	1913	460,000	9,680,000	7,551,000
	1912	453,000	10,968,000	8,006,000
Oats	1913	305,000	10,675,000	4,697,000
	1912	290,000	12,412,000	4,717,000
Rye	1913	20,000	340,000	204,000
	1912	25,000	488,000	268,000
Potatoes	1913	80,000	9,200,000	5,980,000
	1912	85,000	8,075,000	3,311,000
Hay	1913	890,000	a1,824,000	18,240,000
	1912	870,000	1,905,000	16,574,000

a Tons.

MINERAL PRODUCTION. The total value of the metallic mineral production of the State in 1913 was estimated by the United States Geological Survey at $36,200,000, compared with $37,320,996 in 1912. The production of gold was estimated at $18,395,000; silver, 9,150,000 ounces; lead, 85,000 pounds; copper, 7,634,000 pounds; and zinc, 129,680,000 pounds. This was a decrease of $200,000 in gold; an increase of 900,000 ounces in silver; an increase of 10,300,000 pounds of lead, an increase of 500,000 pounds of copper, and a decrease of 2,540,000 pounds in zinc. The heaviest decrease in value was 1,632,000 pounds for zinc. The output of Cripple Creek showed an increase of $176,600 in gold. The value of the Leadville district slightly declined in 1913. Other districts showed increases. The total value of all mineral products of the State in 1912 was $58,167,399, compared with $52,522,416 in 1911.

The gold production in 1912 was valued at $18,588,562, compared with $19,001,975 in 1911. Of the total amount, the Cripple Creek district produced $11,808,392, an increase of $445,709 over the production of 1911. The San Juan region produced $4,119,191 in 1912, compared with $5,035,610 in 1911. The production of placer gold was $423,825, compared with $319,759 in 1911. The greatest part of the placer output was from Summit County. The silver production of the State in 1912 was 8,212,721 ounces, compared with 7,330,178 ounces in 1911. Lake County, which comprises chiefly the Leadville district, showed a decrease of 6899 ounces in 1912. Dry or siliceous ores yielded 5,397,439 ounces in 1912, lead ores, 1,470,930. Lead zinc ores, 594,427, copper lead ores, 389,449, copper ores,. 224,327, and zinc ores, 130,392. In 1912, 7,963,520 pounds of blister copper were produced, as compared with 9,791,861 pounds in 1911. Although the State has no important producing district in which copper is the principal metal, it ranked tenth among the copper producing States in 1912. The main production is derived from the treatment of mixed ores in which copper is of minor importance. These include lead-silver ores and pyripic ores, rich in gold and silver. Leadville and the San Juan-Ouray districts are the chief producers of copper.

Much of the output is recovered as matte in lead furnaces.

The value of the clay products of the State in 1912 was $1,437,394, a decrease of $165,315 in 1911. The principal clay product was common brick, which was valued at $407,128 in 1912.

Petroleum resources of considerable promise are as yet practically undeveloped. Actual production comes from the Florence fields in Freemont County, and the Boulder field in Boulder County. The total production in 1912 was 206,052 barrels. Of this 190,498 barrels were taken from Florence County fields. The production in 1911 was 226,926 barrels.

The total production of coal in Colorado in 1912 was 10,977,824 short tons, valued at $16,345,336. Colorado is by far the most important coal producing State west of the Mississippi River, and ranks seventh among all the States in the production. The coal mined in 1912 was an increase of 820,441 tons over that produced in 1911, but was still nearly a million tons short of the output in 1910, when the maximum output was recorded. Coal mining in 1912 was hampered by labor shortage. There was a decrease of over 1300 in the average number of men employed as compared with 1911. In the earlier year the number of men reported was 14,316, while in 1912 it was 13,000. The coal production of the State in 1913 was approximately 1,500,000 tons less than that of 1912. This was due to the strike in the Colorado fields which went into effect on September 23, and resulted in a production of 50 to 60 per cent. in the remainder of the year. According to the United States Bureau of Mines, there was a total of 95 deaths in the coal mines in the State in 1912, an increase of 4 over 1911. Falls of roof and coal were responsible for 50 deaths. Explosions by burn or gas killed 15 men and holage accidents 14. In all there were 91 deaths underground, 2 in the shafts, and 2 on the surface. The coal mining industry was free from labor troubles in 1912.

COMMUNICATIONS. The total railway mileage of the State on January 1, 1913, was 5653, of which 4350 was standard gauge, and 1302 was narrow gauge. The longest mileage, 970, is that of the Denver and Rio Grande. The Atchison, Topeka, and Santa Fé had 512, the Chicago, Birmington and Quincy, 394, the Colorado and Southern, 387, the Union Pacific, 590. Nearly all the other lines were local.

EDUCATION. The total school population of the State in 1912, between the ages of six and twenty, was 227,187. The total enrollment was 127,428. In the high schools of the State were enrolled 16,377 pupils, and in the graded schools below high schools, 112,582. The average monthly salary for male teachers was $142.49, and for female teachers, $69.01.

FINANCE. The receipts from all sources for the fiscal year 1913, amounted to $3,580,445, and the disbursements for the same period $3,837,423. The chief sources of revenue are from general taxes and from fees. The chief expenditures are for the maintenance of State institutions and government. The bonded debt of the State amounts to $3,250,000.

CHARITIES AND CORRECTIONS. The charitable corrections of the State with their populations in 1913 are the following: State Home for Children, 233; Soldiers' and Sailors' Home, 153; Workshop for the Blind, 717; the State Hospital for the Insane, 590; State Home for Mental Defectives, 63; Boys' Industrial School, 315; Girls' Industrial School, 115; State penitentiary, 759; State reformatory, 81. For the maintenance of these institutions, the general assembly in 1913 appropriated $882,000, and for improvements, $95,500. This legislature enacted several bills relating to the work of charities and corrections. Among them the regulation of the sale of cocaine, registering of tuberculars, and the forbidding the publication of trial, etc., where children are involved. At the general election of 1912, through the operation of the referendum, a mothers' compensation act, an act providing for a more extended civil service, and an act limiting the hours of work for women were passed. In 1913 a home for the blind and an international white slave association were established at Denver.

POLITICS AND GOVERNMENT. The State legislature met in 1913, and passed several important measures, which are noted in the section *Legislation* below. Many of these measures were the result of referendum vote cast in 1912. The term of the governor expires on January, 1915, and the next election for State officers is November 3, 1914. The death of Senator Charles J. Hughs in 1912, and the decision of Senator Guggenheim not to be a candidate another term in the Senate, made it necessary for the legislature to elect two senators in January. Accordingly, on January 14, former Gov. F. Shafroth was elected to succeed Senator Guggenheim, and Charles S. Thomas, a former governor of the State, was elected to serve for the unexpired term of Senator Hughs. Governor Ammons was inaugurated on the same date.

The income tax bill, passed by the legislature, was vetoed by Governor Ammons on May 16. The State was troubled by a series of serious coal strikes in the latter part of the year. (For an account of these disturbances, see STRIKES.) On December 1, a Federal grand jury at Pueblo, indicted President White and twenty-four other officials of the United Mine Workers, on charges of obtaining a monopoly of labor, and restraining trade by conducting a strike.

LEGISLATION. The legislature was in session in 1913 and several important measures were passed. Many of these were acts to bring into effect the direct legislation of November, 1912, by means of the initiative and referendum. The most notable of these laws were those providing for home rule in local and municipal matters, for the recall of all elective officers, including judges, and for the recall of certain judicial decisions. These were all initiated and were all constitutional amendments. Initiated statutes carried in the election of 1912 were the parents' pension act, a headless ballot, the civil service act, and an act providing for eight-hour laws for women and underground workers. In addition to these measures the legislature passed a loan-shark law, which follows closely the measure passed by Congress to regulate practices in the District of Columbia, the anti-trust act, an act directing the Supreme Court to prescribe rules of practice and procedure in all courts of record (which rules shall supersede in statute any that conflict therewith), an employers' liability act, and a commission to regulate the minimum wage for women and minors. A measure was also passed creating a public utilities commission. See also LIQUOR REGULATION.

State Government. Governor, Elias M. Ammons; Lieut.-Governor, Stephen R. Fitzgerald; Secretary of State, James B. Pearce; Treasurer, M. A. Leddy; Auditor, Roady Kenehan; Adjutant-General, John Chase; Attorney-General, J. Fred Farrar; Superintendent of Public Instruction, Mary C. C. Bradford—all Democrats.

Judiciary. Supreme Court: Chief Justice, Geo. W. Musser, Dem.; Justices, S. H. White, Dem.; W. A. Hill, Dem.; M. S. Bailey, Dem.; William H. Gabbert, Rep.; Tully Scott, Dem.; James E. Garrigues, Rep.; Clerk, James R. Killian, Dem.

State Legislature, 1913. Democrats: Senate, 24; House, 48; joint ballot, 72. Republicans: Senate, 11; House, 17; joint ballot, 28. Democratic majority: Senate, 13; House, 31; joint ballot, 44.

The State representatives in Congress will be found in the article United States, section *Congress.*

COLORADO, University of. A State institution of higher learning, founded at Boulder, in 1876. The students enrolled in the several departments of the university in the autumn of 1913, were as follows: Arts, 739; engineering, 305; medical, 49; pharmacy, 20; law, 77; graduate, 60. The faculty numbered 200. The most notable event in the history of the university during the year was the resignation of James S. Baker as president, and the election of Dr. Livingston Farrand (q.v.) as his successor. The college received from Charles Inglis $75,000 to establish the Thomson professorship of law. The annual income is about $305,000. The library contains 75,000 volumes.

COLORED METHODISTS. See Methodists.

COLOR PHOTOGRAPHY. See Chemistry, Industrial, and Photography.

COLUMBIA, District of. See District of Columbia.

COLUMBIA UNIVERSITY. An institution of higher learning, founded in New York City, in 1754. The total number of students enrolled in all departments in the autumn of 1913 was 13,573. The faculty numbered 999. In 1913 the schools of mines, engineering, and chemistry were changed to a graduate school. Several noteworthy benefactions were received during the year. Among these were gifts of $450,000 from the estate of Joseph Pulitzer, of $250,000 from the estate of Francis Furnald, and of $67,642 from the estate of John S. Kennedy. The volumes in the library were about 500,000. The productive funds amount to about $8,700,000, and the annual income is about $1,750,000. The president is Nicholas Murray Butler, LL. D.

COMBUSTION ENGINES. See Internal Combustion Engines.

COMETS. See Astronomy.

COMMERCE. For foreign trade, see United States and articles on foreign countries; for internal trade, see United States and articles on Industries, and Financial Review.

COMMERCE COURT. See Railways.

COMMISSION FORM OF GOVERNMENT. See Municipal Government.

COMMISSION ON INDUSTRIAL RELATIONS. See Industrial Relations Commission and Labor Legislation.

COMMISSION PLAN. See Municipal Government.

COMORO ISLANDS. See Mazotte.

COMPENSATION FOR WORKMEN. See Workmen's Compensation.

COMPOUNDS, Chemical. See Chemistry.

COMPTON, Alfred George. An American mathematician and educator, died December 11, 1913. He was born in London, England, in 1835, and came to America with his parents in 1842. He entered the City College of New York in 1849, the year of its foundation, and was a member of the first graduating class. After his graduation, he was appointed a teacher in the College of the City of New York, which was then known as the Free Academy. He remained with this institution from that time until his retirement in 1911. During the entire period he was a teacher of mathematics, and from 1902 was professor of physics. From December, 1902, to September, 1903, he was acting president of the college. He was the author of *A Manual of Logarithmic Computations* (1891); *First Lessons in Wood-Working* (1880); *First Lessons in Metal-Working* (1890); *Some Common Errors of Speech* (1898). The mechanical arts building of the college received the name of Compton Hall in honor of Dr. Compton.

CONCILIATION, Industrial. See Arbitration and Conciliation, Industrial; and Strikes.

CONCRETE. The uses of concrete and reinforced concrete in the year 1913 were extended and as this material enters into so many developments of engineering construction the notable structures in which it is employed might properly be discussed under separate heads. The great dam at Keokuk, Iowa, across the Mississippi, and the plant of the Mississippi River Power Company at that point, discussed in previous issues of the Year Book, are notable examples of work completed during the year, and the use of Tufa cement in the Los Angeles aqueduct, and of Portland cement in the Catskill aqueduct, are important instances in another field. A notable reinforced concrete building was being planned during the year for the new Massachusetts Institute of Technology, on the banks of the Charles River at Cambridge. The main building was to have some 850,000 square feet of floor area and require more than 50,000 cubic yards of concrete. It was to be composed of about 16 divisions, each of which was stated to be large enough to form a complete building in itself. Mention also might be made of the progress on the Arrowrock dam on the Boise River, Idaho, a reinforced concrete structure 351 feet in height, and of the completion of the concrete locks of the Panama Canal. The casting in concrete of groups of small houses for working men progressed during the year and for plain and similar structures economical in original cost and maintenance was found to be very satisfactory. Important groups of such buildings were erected in Nanticoke, Pa., and Oklahoma, while in France and Ireland much attention was paid to the subject. In Ireland it was stated that 30,000 of these houses were built in the last three years. Increased interest during the year was aroused in the use of concrete in road building. Its application to the wearing surface of roads, as well as to the foundations for pavements, already had been developed, and was being watched with considerable interest; but in this field, as with other uses of concrete, improper construction had its effect and well defined rules and specifications were developed to insure the proper construction of such highways. During the year there were the usual number of failures of concrete buildings due in the main to ignorance and failure to observe proper conditions of construction, and much attention was paid to full sized tests and examinations, as well as experiments with various structures. See CEMENT.

CONDENSED MILK. See DAIRYING.

CONGO, BELGIAN. Formerly the Congo Free State. The capital is Boma (Bas-Congo). The statistics cited in this article are those of the Belgian colonial minister.

AREA AND POPULATION. The area of the colony is 2,365,000 square kilometers (913,127 square miles), and the frontier measures 9165 kilometers. Area by districts, with chief town in district: Bas-Congo, 40,110 sq. kms. (Boma); Moyen-Congo, 54,990 (Léopoldville); Kwango, 141,710 (Bandundu); Lac Léopold II., 127,950 (Inongo); Equateur, 243,310 (Coquilhatville); Bangala, 128,910 (Lisala); Ubangi, 60,270 (Libenge); Uele, 219,790 (Niangara); Aruwimi, 66,190 (Basoko); Stanleyville, 436,430 (Stanleyville); Kasai, 365,230 (Lusambo); and the vice-government-general of Katatango, 460,110 sq. kms., with these divisions—Lomami (Kabinda), Tangawika-Moero (Kongolo), Haut-Luapula (Elizabethville), and Luala (Kafakumba). By a decree of March 28, 1912, a reorganization was effected into 22 districts, the boundaries and areas of which are not at present available. The whites in the colony, January 1, 1912, numberd 5465 (3307 Belgians). Unofficial estimates of the native population vary from nine to twenty millions.

LAND SALES. It is reported that the sales of crown lands in 1911 were 35 in Katanga and 21 in other districts: 31 in Katanga (15 in other districts) within urban circumscriptions, total selling price 265,357.96 (99,592) francs; 4 (1) suburban, 18,750 (250) francs; 5 factory sites, 7500 francs. Rented lands covered about 110 hectares in Katanga (117 in other districts) and the total rental was 85,017 (27,419) francs.

PRODUCTION. The country is entirely undeveloped. Indigenous products gathered for export are shown in the section on trade below.

COMMERCE. The total general trade appears below for five consecutive years, values in thousands of francs:

	1907	1908	1909	1910	1911
Imports........	33,437	32,271	28,482	43,979	58,385
Exports*.......	77,541	56,867	78,014	95,599	78,955

* Rubber, 1911, 50,424,000 francs (76,030,000 in 1910); ivory, 9,237,000 (9,361,000); palm oil, 2,032,000 (2,916,000); palm nuts, 3,504,000 (3,101,000); "other products," 13,758,000 (5,091,000).

In the special trade the 1911 imports were valued at 48,632,877 francs; 1910, 36,846,508. The details of its imports are often significant, viewed in conjunction with its production, of a country's degree of civilization and rate of progress. Especially is this the case with the Belgian Congo, a country whose native working population is almost exclusively engaged in the gathering of rubber—an article not of consumption, but of export—and other forest products. Yet compare the import of food-stuffs in 1911 (9,248,000 francs, total general) with the export of rubber (50,424,000 francs). Compare also the imports in detail of the special trade: 297,812 francs for guns (652,772 in 1910), 672,369 for pistols and ammunition, 451,270 for powder, explosives, etc.; the last importation of cannon was 1906-9—13,380 fr.; steamers, machinery, anchors and chains, parts, etc., for boats, 1,920,838 fr.; locomotives and parts, telephone, telegraph, and electrical apparatus, etc., 8,050,223; metals (sheet iron, nails, wire, rails, beams, bars, etc.), 2,964,137; scientific and other instruments, 478,815; books, registers, paper, and office furnishings, 749,359. Of the foregoing there is little suited for native use; there are no agricultural implements recorded. It is unlikely that wine to the amount of 1,666,635 francs, beer, 898,373; liquors, 488,139, were intended wholly for native consumption. Construction material 1,235,601 francs, musical instruments 125,402; chemical products 207,592, pharmaceutical products 516,054, coal and coke, wood, haberdashery and perfumery may be for the use of the natives or they may be for the use of resident white exploiters of the natives. There are 3,117,344 francs for lingerie and other garments. Outside of mules and asses 85,822 francs, horses 15,540 francs, and forage for these and other animals 13,756 francs, there entered cattle 329,721 francs, sheep 20,730 francs, swine, 1125 francs, other animals 6658 francs; of these some were probably for native consumption, some for the resident whites. The same may be said of foodstuffs (fish, cereals and cereal products, sugar, potatoes, etc.) to the amount of 7,554,501 francs; soap, tobacco, and oils, including petroleum. Textiles, including velvets, silks, carpets, etc., as well as bagging and tarpaulins, were valued at 8,621,263 francs; of these the prints and other cottons were no doubt destined largely for native use, as were certainly 1,971,272 francs' worth of iron and copper bracelets, mirrors, and other "*quincaillerie*" ("ironmongery, trash, gimcracks"). Spirituous liquors valued at 324,344 francs were imported for barter with the natives. Place against these imports the principal articles of export—all or nearly all the product of native labor: 34,426,896 francs rubber, ivory 5,683,468, raw gold 3,119,050, white copal 3,348,317, palm kernels 2,878,674, palm oil 1,731,898, raw copper 1,834,041; total exports, 54,052,426 francs (66,602,295 francs in 1910). If the producer is paid a fair price for his product, it is reasonable to assume that the nine to twenty native millions of the Belgian Congo are accumulating considerable fortunes. Otherwise the seemingly favorable balance of trade assumes a significantly vicious aspect from the economic standpoint.

Preliminary figures for the 1912 trade give imports general 59,424,000, special 49,715,000; exports general 78,923,000, special 54,021,000.

Of the total imports in the special trade in 1911 (48,632,877 francs), goods valued at 31,435,138 francs came from Belgium; of the exports (54,052,427), 47,566,266 went to Belgium, 3,413,896 to Angola. At Boma (1911), 207 vessels, of 445,319 tons entered; at Banana, 262, of 379,513 tons.

RAILWAYS. Lines, with holdings, in operation January 1, 1912: Congo Railway Company, 400 kilometers; Stanleyville-Ponthierville, 125; Kindu-Kongolo, 355; Lualaba-Tanganyika (271 kilometers under construction); Katanga Railway Company—Rhodesian frontier to Elizabethville, 262 (total line 275), and Elizabethville to Bukama, 163 (under construction); Boma to la Lukula, 80; la Lukula to Thela, 56 (under construction). During 1913 preliminary work for the extension of the Elizabethville-Kambove railway towards Bukama was being undertaken and actual construction was in progress. A survey was being made for the Lower Congo Katanga railway, 1100 miles in length, so that construction work could be started. This line would join the Cape-to-Cairo at Bukama. The Congo-Tanganyika railway from Kabalo to the lake was approaching completion and little remained but laying the rails for a few miles.

During the year it was announced that the Kambove-Djilongo section of the Katanga Railway was under construction and that a contract had been awarded for 150 miles further on to Bukama, where it would join the Cape-to-Cairo line. Kambove hitherto had been reached from Broken Hill so that the railroad distance from Cape Town towards the interior of Africa was 2420 miles.

Finance and Government. In the table below are shown revenue and expenditure for four years, 1911 and 1912 being budget estimates (thousands of francs):

	1909	1910	1911	1912
Revenue	34,570	33,517	40,870	45,368
Expenditure	34,470	40,371	*59,658	†66,539

* Including 12,222,443 francs extraordinary.
† 18,618,660 francs extraordinary.

The receipts from rubber sales in 1912 were estimated at 13,210,369 francs; from state domains, tribute, and taxes in kind, 8,317,220; direct taxes, 7,216,000; customs, 7,069,000; mines, 3,420,000, etc. Expenses for administration amounted to 9,384,400 francs; for troops and police, 8,762,700; interest and charge, 7,807,885; marine, 3,727,800; posts, telegraphs, etc., 2,396,510; etc. The debt stood (1912) at 141,222,200 francs.

A governor-general administers the colony (1913, F. Fuchs). A commissioner is at the head of each district. In consequence of failure to carry out promised reforms in the matter of exploitation of the natives, Great Britain has so far withheld recognition of the annexation of the Congo by Belgium.

History. British recognition of the Belgian annexation of the Congo Free State was long delayed on account of the mistreatment of the native under the Belgian régime. In April, 1913, however, the (British) Congo Reform Association, which was formed for the purpose of protecting the natives from expropriation and oppression, reported that the liberties of the natives were now secure, that the rubber tax had been abolished and freedom of the trade established, that the concessionary companies had been deprived of their dangerous prerogatives, and that no obstacle longer existed to recognition of the Belgian annexation. The suggestion met with official approval, and on May 29 Sir Edward Grey was able to report it to the British House of Commons. The Catholic missionaries in Belgian Congo protested frequently during the year that their freedom was being violated. It seems that certain officials had shown themselves unfriendly and unfair in their attitude towards the missions.

CONGO, French. A former name for French Equatorial Africa (q.v.).

CONGO FREE STATE. See Congo, Belgian.

CONGREGATIONALISM. At the national council, held in Kansas City, Mo., October 22-31, 1913, the commission of nineteen appointed at the preceding memorial council in Boston, in 1910, presented an entirely new scheme in organization. A new constitution was adopted, when the old order passed away. The autonomy of the local church is maintained, and fellowship has been made to be more compact and purposeful. A larger range of service was granted to the general secretary, and the several benevolent societies had been requested to submit to the advisory direction of a commission on missions, the object being to prevent duplication of activities, to effect all possible economies in administration, and so to correlate all the societies as will best secure a maximum of efficiency with a minimum of expense.

The officers of the national council are Rev. Charles Reynolds Brown, D. D., New Haven, Conn., moderator; Rev. Hubert C. Herring, D. D., Boston, Mass., secretary; and the Rev. Joel S. Ives, Hartford, Conn., treasurer. The incorporation for the national council was effected through the legislature of Connecticut in 1911.

Congregationalism is organized in the State under conferences—in localities, under associations. They are representative bodies, as is the national council, having no legislative, but simply advisory, powers. The benevolent and missionary operations of the churches are carried on under the following societies: American Board of Commissioners for Foreign Missions, which received for its work in 1912, $1,099,447.51; Woman's Boards, $338,834.62; Church Building, $304,805.34; Education Society, $150,000; Home Missionary, $261,106.07; American Missionary Association, $432,681.15; Sunday School and Publishing, $64,713.00; Ministeral Relief, $108,260.88. The churches contributed to all work $2,363,584 as reported by 5239 churches. For administration expenses, 4717 churches reported $9,307,618. Theological seminaries are those of Andover, Atlanta, Bangor, Hartford, Chicago, Oberlin, Talladega, Pacific, and Gale. Forty colleges have a Congregational origin. In addition to local associations of churches, the State conferences, and national councils, we find clubs, so called, and ministerial associations for intellectual culture, fellowship, and the promotion of the spiritual life. The report ending December 31, 1912, indicated 6064 churches, having 743,026 members; 675,677 members enrolled in Sunday schools; 3014 endeavor societies, with a total membership of 124,654 persons; 1477 men's and boys' organizations, membership, 74,085. The number of ministers is 5944, 1932 of whom are without charge, according to the latest figures. There are, approximately, all told, 14,576 churches, 1,402,202 members, and 1,560,983 Sunday school members.

CONGREGATIONAL METHODIST CHURCH. This denomination had in 1913 13,529 communicants, 333 churches, and 337 ministers. The denomination has semi-annual district conferences, annual State conferences, and quadrennial conferences. It admits both white and colored persons, the latter being separately organized. The denomination is strongest in the South. A publishing house is maintained at Ellisville, Miss. The only educational institution under the auspices of the denomination is the Atlanta Bible School. The official organ is *The Messenger*, published in Ellisville, Miss. See also Religious Denominations and Movements.

CONGRESS OF THE UNITED STATES. See United States.

CONNECTICUT. Population. The population of the State in 1910 was 1,114,757. According to the report of the Bureau of the Census, made in 1913, the population in that year was 1,181,793.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture and those of 1913 are estimates only;

		Acreage	Prod. Bu.	Value
Corn	1913	61,000	2,348,000	$1,996,000
	1912	60,000	3,000,000	2,310,000
Oats	1913	11,000	308,000	169,000
	1912	11,000	338,000	166,000
Rye	1913	7,000	135,000	124,000
	1912	7,000	122,000	112,000
Potatoes	1913	24,000	2,208,000	1,921,000
	1912	23,000	2,461,000	1,920,000
Hay	1913	379,000	a 432,000	8,683,000
	1912	379,000	436,000	9,810,000
Tobacco	1913	18,400	b28,520,000	5,989,000
	1912	17,500	29,750,000	7,170,000

a Tons. b Pounds.

Mineral Production. The total value of the products is less than $4,000,000 annually, of which approximately 80 per cent. is derived from quartz and clay pits. An inconsiderable quantity of iron ore is mined and a small quantity of pig iron is made in the State. The products of the quarrying industry in 1912 were valued at $1,467,458, compared with $1,215,462 in 1911. The principal stone quarried is granite. Connecticut is the third State in the Union in the production of feldspar. The output in 1912 was 19,075 short tons, valued at $94,097, compared with 16,497 tons, valued at $73,557 in 1911. Other products are mineral waters, quartz, sands, and gravels. The total value of the products of the State in 1912 was $3,715,480.

Charities and Corrections. The charitable and correctional institutions under the control of the State include the Connecticut State Prison at Wethersfield, the Connecticut State Reformatory at Cheshire, Connecticut School for Boys at Meriden, Industrial School for Girls at Hartford, and the Florence Crittenton Mission at New Haven. There were also hospitals for the insane at Middletown. Norwich, and Hartford, a colony for epileptics at Mansfield, and a school for imbeciles at Lakeville. The total expenditures for these institutions and certain others which received State aid is about $1,700,000 annually.

Education. The school population of the State in 1913 was 255,692, the total enrollment in public schools 197,852, and the average daily attendance was 155,235. The male teachers numbered 361, and the female 5130. The average salary of male teachers was $125 monthly, and of the female teachers, $57.87. The legislature of 1913 passed several important measures relating to education. Among these were acts providing for the codification of the school laws. An act providing for vocational guidance was also passed. A provision was made for the organization in each town of a model school for the observation and instruction of a training class for teachers. An act providing schools for instruction in trades, useful occupations, and avocations was also passed.

Transportation. The total railway mileage operated in the State on June 30, 1913, was 2046.09.

Politics and Government. The legislature met in 1913, and passed a number of important measures. These are noted in the section *Legislation* below. There was no election for State officers in 1913. The term of the governor expires in January, 1915, and the next election for State officers is on Nevember 3, 1914. On February 8 the legislature passed a resolution for the State control of the New Haven road. The developments in the history of the New York, New Haven and Hartford Railroad formed the chief features of the history of the State in 1913. They will be found fully discussed in the article Railroads. The legislature ratified the constitutional amendment for the direct election of senators on April 8. A bill providing for woman suffrage amendments to the constitution was defeated on April 2.

Legislation. The legislature met January 8, 1913, the first session under the new constitutional provision compelling a final adjournment early in June. The Senate was Democratic by 21 to 14, and the House, with 258 members, had 132 Republicans. Various appointments, falling to the legislature, failed through disagreement of the two branches. The governor's action in filling these vacancies was unanimously sustained by the Supreme Court of the State. The constitutional amendment for choosing United States senators by the people was ratified and legislation was passed providing for such election. A State constitutional amendment to increase the pay of legislators from $300 to $500 for the session passed both branches by the needed two-thirds vote, and went to the people in October, when it was emphatically rejected. A woman suffrage amendment to the State constitution was rejected by the House on its first appearance. Amendments must pass the House at one session by a mere majority and then pass both branches at the next session by a two-thirds vote before submission to the people. The most important act of the legislative session of 1913 was the workingmen's compensation law, which has been construed by the attorney-general to cover all employers, though at its passage it was supposed that employers of less than five persons (chiefly farmers, of whom there were 99 in the legislature) were exempted. A civil service law was passed for employes in State institutions and a commission appointed of which Charles G. Morris of New Haven is clerk. A State park commission was also appointed. The game laws were overhauled and a new fish and game commission was appointed, with a superintendent, who names a deputy in each county. The Sunday law was slightly relaxed so as to permit free concerts and athletic sports in public parks, if the local authorities consent, and if no prizes are at stake. A general banking law passed, doing away with special charters. The legislature adjourned June 4, and the governor, for lack of funds, vetoed many appropriation bills left on his hands. An issue of $4,000,000 4 per cent. bonds was marketed toward the close of 1913. The State debt is now about $11,000,000, all contracted within a decade. See also LIQUOR REGULATION.

STATE GOVERNMENT. Governor, Simeon E. Baldwin, Democrat; Lieutenant-Governor, Lyman T. Tingier, Democrat; Secretary of State, Albert L. Phillips, Democrat; Treasurer, Edward S. Roberts, Democrat; Attorney-General, John H. Light, Republican; Commissioner of Insurance, Barton Mansfield, Democrat.

JUDICIARY. Supreme Court: Chief Justice, Samuel O. Prentice, Republican; Associate Justices, George W. Wheeler, Democrat; John M. Thayer, Democrat; Alberto T. Roraback, Republican; John K. Beach, Democrat; Clerk, Geo. A. Conant, Republican.

STATE LEGISLATURE, 1913. Democrats: Senate, 21; House, 120; joint ballot, 141. Republicans: Senate, 14, House, 132; joint ballot, 146. Progressives: House, 6; joint ballot, 6. Democratic majority: Senate, 7. Republican majority: House, 6.

The State representatives in Congress will be found in the article UNITED STATES, section *Congress*.

CONSERVATION. See IRRIGATION, FORESTRY, LANDS, PUBLIC DRAINAGE, ALASKA.

CONSERVATION EXPOSITION. See EXPOSITIONS.

CONSTANS, JEAN ANTOINE-ERNEST. A French public official, died April 7, 1913. Born at Beziers in 1833, he studied law at Toulouse, graduating there as doctor of law, and was afterwards for several years engaged in commercial enterprises in Spain. Subsequently he took up the study of law again, and was successively attached as professor to the faculties of Douai, Dijon, and Toulouse universities. He was elected to the Chamber of Deputies in 1876. Three years later he became under-secretary of state in the cabinet of de Freycinet, later occupying positions in most of the French ministries until 1886, when he was appointed temporarily as French minister at Peking. Afterwards for a short time governor-general of Indo-China, he returned to office in 1889 as a member of the Tirard cabinet, and at the crisis of the Boulangist agitation he became minister of the interior. General Boulanger had been returned to the Chamber by a large majority in April, 1888, on the programme of a revision of the constitution. The Chamber was against him, and he resigned, only to be simultaneously reëlected in three departments. Finally, in January, 1889, he was returned by a vast majority for the Seine. From that date he was declared to be a danger to the republic, and M. Constans caused a warrant to be issued for his arrest. Boulanger fled, and was condemned *in absentia* to imprisonment in a fortress for life. Constans was still in office when Boulanger committed suicide on the grave of Marguerite Crouzet at Brussels, September 30, 1891. In December, 1898, at the age of 65, he was appointed French minister at Constantinople. It was apparent in 1898 that he had not fully appreciated the forces that brought about the revolution of the Young Turks. This consideration, as well as his age, led to his being superseded in May, 1909, by Bompard.

CONSTANTINE I., KING OF GREECE. He succeeded his father, King George, on the assassination of the latter on March 18, 1913 (see GREECE). Born at Athens in 1868, his inclinations were for a military career, and his military education was conducted by the best instructors in Europe. On October 27, 1889, he married Princess Sophia of Prussia, sister of Emperor William. During the frequent absences of his father he always acted as regent, and his rule was marked by as much firmness as the constitution of the country would permit. He commanded the Greek troops in the ill-fated war against Turkey, and was blamed by his fellow-countrymen for the reverses suffered by the Greek army. That the criticism was unjust has long since been acknowledged, but at this time there were strong demands that he resign his succession to the throne. During recent years, however, when Greece has been reviving her military powers and preparing for a renewal of the contest against Turkey, the important part taken by Constantine has brought him again the good will of the people. In 1909 Constantine came into collision with the Military League, which consisted of officers of the army and navy. This league had become so powerful that it dictated to Parliament and attempted to dictate to the prince. Lieutenant Typaldoz and some other officers seized a torpedo-boat destroyer and announced that they would revolt against the king, seize Crete, and place a son of Constantine on the Greek throne. The revolt was quickly put down, and after the execution of several of its members the Military League ceased to exist. These troubles and others of a similar nature were driven out of the public mind when the Balkan allies began to make ready for the war by which they hoped to drive Turkey out of Europe. Constantine, who was commander-in-chief of the Greek forces, announced at once that he would take the field in command of his troops. The first great victory was the capture of Salonica on November 8. Then followed the long movement for the objective point of the campaign, the capture of the great Turkish stronghold of Janina, in Epirus. The conduct of the Greek troops has been described by the military experts who witnessed it, as masterly. The stronghold was bombarded and charged until overtures for surrender came. Capitulation took place on March 6, 1913, when the entire garrison of 32,000 men laid down their arms and gave themselves up as prisoners. King Constantine has five children: Prince George, born in 1890; Prince Alexander, born in 1893; Princess Helene, born in 1896; Prince Paul, born in 1901; and Princess Irene, born in 1904.

CONSULAR SERVICE. See CIVIL SERVICE.

CONSUMPTION. See TUBERCULOSIS.

COOLEY, ALFORD WARRINER. An American jurist and public official, died July 19, 1913. He was born in Westchester, N. Y., in 1873, and graduated from Harvard University in 1895. He studied at the Columbia Law School from 1895-97, and in 1898 was admitted to the bar. From 1896-98 he was inspector of the common schools of New York City; in 1900-01 a member of the New York Assembly; and in 1903 United States civil service commissioner. He served in this position for three years, when he was appointed assistant attorney-general of the United States. He was appointed associate justice of the Supreme Court of New Mexico in 1909, but resigned in the following year.

COÖPERATIVE CREDIT SOCIETIES. See AGRICULTURAL CREDIT.

COÖPERATIVE MARKETING. See AGRICULTURE and HORTICULTURE.

COPPER. Both the smelter and refinery production of copper in 1912 showed a large increase over 1911, and was the largest in the history of the industry. Several companies that made but small output in 1911 were large producers in 1912, and the year witnessed the beginning of an important output from the Yerington district in Nevada. The domestic consumption of copper showed a considerable increase over 1911, while exports showed a slight decrease. The production of copper in 1912 by smelters in the copper-bearing material in the United States was 1,243,268,720 pounds, valued at $205,139,338, as compared with 1,097,232,749 pounds, valued at $137,154,092 in 1911. The production for 1912 was the largest in the history of the industry, surpassing that of 1911 by 146,035,971 pounds in quantity, and by $67,985,246 in value. The mine production in 1912 was 1,249,094,891 pounds of copper, or 5,826,171 pounds more than the smelters. Twenty-one States and Territories contributed to the copper producing of 1912. Three leading States, Arizona, Montana, and Michigan, produced 72 per cent. of the total output in 1912, as in 1911, and the 8 leading States, including Utah, Nevada, Alaska, California, and New Mexico, produced over 97 per cent. of the total output in 1912. Montana ranked first in the production of more than one-third of the entire output of the country. Michigan ranked second, with slightly less than one-third; Arizona ranked third, with one-fifth of the total output. The most notable feature in the copper industry in 1911-12 was the beginning of the production on a large scale in Alaska. In 1912, 31,926,209 pounds of blister copper were produced in the Territory, compared with 22,314,889 pounds in 1911.

The refinery output of the United States in 1912 was made by 13 plants, making copper by the electrolytic and furnace process. In addition to these refineries there are numerous plants in different parts of the country that make a considerable output from old copper, brass, and other alloys of copper. The total production of new refined copper in 1912 was 1,568,104,478 pounds. Of this quantity 914,935,371 pounds were electrolytic, 231,112,228 pounds were lake copper, 24,777,266 pounds were casting copper, and 32,852,030 pounds were pig copper. In addition there were 360,000,000 pounds of foreign ore refined by the electrolytic process. The following table from the United States Geological Survey shows the production of copper in the United States in 1910-12 by pounds:

State	1910	1911	1912
Alaska	4,311,026	22,314,889	31,926,209
Arizona	297,250,538	303,202,532	359,322,096
California ...	45,760,200	35,835,651	31,516,471
Colorado	9,307,497	9,791,861	7,963,520
Idaho	6,877,515	4,514,116	7,182,185
Michigan	221,462,984	218,185,236	231,112,228
Montana	283,078,473	271,814,491	308,770,826
New Mexico.	3,784,609	2,860,400	29,170,400
Nevada	64,494,640	65,561,015	83,413,900
Oregon	22,022	125,943	311,860
South Dakota	43	1,607	23,657
Utah	125,185,455	142,340,215	132,150,052
Washington..	65,021	195,503	1,069,938
Wyoming ...	217,127	130,499	25,080
Eastern States and unapportioned	18,342,359	20,358,791	19,310,298
Total.......	1,080,159,509	1,097,232,749	1,243,268,720

From this table it will be noted that Arizona ranks first, although in the total production of copper from 1845-1912 it is surpassed by Montana and by Michigan. Arizona took first place in 1910 in the production and outstripped that of Montana.

The imports of copper of all kinds in the United States in 1912 was 410,240,295 pounds. Of this 124,742,193 pounds came from Mexico. Other large exporters to the United States were Peru, Spain, Canada, Australia, Tasmania, and Japan. The exports in 1912 were 775,000,658 pounds. Of this 252,156,012 pounds were sent to Germany, and 152,618,177 pounds to the Netherlands. Large quantities were also sent to the United Kingdom, to France, Austria, and Canada.

The following table shows the world production of copper in 1911-12:

Producing country	1911	1912
United States	1,097,232,749	1,243,268,720
Mexico	121,072,000	158,760,000
Japan	123,200,000	146,853,000
Spain and Portugal.....	123,200,000	131,175,450
Australia	99,904,000	105,399,000
Chile	66,304,000	83,569,500
Canada	55,648,011	77,775,600
Russia	57,120,000	73,867,500
Germany	68,320,000	53,581,500
Peru	58,240,000	60,858,000
Sweden and Norway....	21,280,000	25,578,000
Cape Colony............	15,680,000	14,112,000
Servia	....	16,317,000
German Southwest Africa and other Africa......	....	22,491,000
Austria-Hungary	5,644,800	8,820,000
Italy	6,720,000	5,071,500
Bolivia	5,600,000	8,158,500
Newfoundland	4,704,000	1,102,500
Turkey	1,568,000	1,102,500
Cuba	....	8,820,000
Miscellaneous	23,520,000	4,630,500
Total	1,954,957,560	2,251,311,770

American Production in 1913. The production of copper in the United States, Canada, Mexico, and Cuba in 1913 and previous years, as compiled by the *Engineering and Mining Journal* (New York), is given in the accompanying table. The figures are based upon reports received from the several producers and represent the smelters' output, which is a different thing either from the mine output or the refinery output, and explains the discrepancy with the figures of the United States Geological Survey. In the case of the Michigan production, however, the smelters are also refiners and their figures for smelting and refining productions are consequently the same.

Smelters' Production of Copper in the United States

(In pounds)

State	1911	1912	1913
Alaska	19,412,000	32,602,000	23,360,000
Arizona	300,578,816	357,952,962	401,223,786
California ...	36,806,762	31,069,029	32,206,435
Colorado	8,474,848	7,502,000	7,320,000
Idaho	3,745,210	5,964,542	8,594,722
Michigan	216,412,867	231,628,486	161,000,000
Montana	271,963,769	309,247,735	284,210,911
Nevada	65,385,728	82,530,608	83,829,329
New Mexico..	1,518,288	27,488,912	48,710,000
Utah	138,336,905	131,673,803	148,274,658
Washington..	....	1,121,109	(*a*)
East & South	19,656,971	18,592,655	20,857,849
Other States.	1,564,207	4,396,667	9,228,891
Totals	1,083,856,371	1,241,762,508	1,228,811,581

(*a*) Included in "Other States."

SMELTERS' PRODUCTION OF COPPER IN NORTH AMERICA

(In Pounds)

Country	1911	1912	1913
Un'd States..	1,083,856,371	1,241,762,508	1,228,811,581
Canada	56,370,754	75,425,575	76,250,667
Mexico	136,430,331	162,295,545	116,435,566
Cuba	8,274,563	9,684,934	7,534,010
Totals......	1,284,932,019	1,489,168,562	1,429,031,824

REFINERS' PRODUCTION

(In Pounds)

Class	1911	1912	1913 (*b*)
Electrolytic	1,156,627,311	1,288,333,298	1,390,000,000
Lake	216,412,867	231,628,486	161,000,000
Casting	22,977,534	24,777,266	25,000,000
Pig	35,920,626	37,181,287	39,000,000
Totals......	1,431,938,338	1,581,920,287	1,615,000,000

(*b*) Estimated.

THE WORLD'S PRODUCTION OF COPPER IN 1913, as given in the careful estimates of the *Engineering and Mining Journal* is given in the following table:

WORLD'S PRODUCTION OF COPPER (*a*)

(In metric tons of 2204.62 pounds)

Country	1910	1911	1912	1913
United States	492,712	491,634	563,260	557,387
Mexico.......	62,504	61,884	73,617	52,815
Canada......	23,810	25,570	34,213	34,587
Cuba.........	3,538	3,753	4,393	3,417
Australasia..	(*b*)40,962	(*b*)42,510	(*b*)47,772	(*f*)45,300
Peru.........	(*c*)27,375	28,500	26,483	25,715
Chile.........	38,346	33,088	39,204	40,195
Bolivia.......	3,212	2,950	4,681	(*g*) 5,000
Japan.......	(*c*)50,703	(*d*)52,303	(*d*)62,486	(*g*)65,000
Russia......	(*b*)22,700	(*c*)25,747	(*c*)33,550	(*c*)44,000
Germany....	(*b*)25,100	(*b*)22,363	(*b*)24,303	(*g*)25,000
Africa.......	(*b*)15,400	(*b*)17,252	(*b*)16,632	(*g*)20,000
Spain and Portugal...	(*b*)51,100	(*b*)52,878	(*b*)59,873	(*e*)52,300
Other countries.......	(*b*)24,888	(*b*)26,423	(*b*)29,555	(*g*)30,000
Totals.....	882,351	886,855	1,020,022	1,000,716

(*a*) The statistics in this table are the compilations of the *Engineering and Mining Journal*, except where specially noted to the contrary. (*b*) As reported by Henry R. Merton & Co. (*c*) As officially reported. (*d*) Privately communicated from Japan. (*e*) As communicated by correspondents. (*f*) Shipments to Europe. (*g*) Estimated.

The above statistics for 1913 show how the aggregate production of the year was affected by various circumstances. The Michigan strike reduced the American total, the Mexican production was adversely affected by the revolution and unrest in that country, and the Spanish production by the strikes at Rio Tinto. Chile and Peru just about held their own during the year, the Braden and Chuquicamata enterprises not yet having gained headway. The production of Katanga increased. Siberia (Russia) was the only part of the world to show a great rate of increase in 1913.

See also METALLURGY.

COPYRIGHT. The latest copyright legislation (1912-1913) provided that copyright might be had of the works of an author of which copies are not reproduced for sale, by the deposit with claim of copyright of one, or in some cases two, complete copies of such works—lectures or the like, dramatic or musical productions, motion pictures, or the like; of a title or description under similar conditions; of a work of art or a plastic work or drawing. This privilege of registration did not, however, exempt the copyright proprietor from the deposit of copies according to earlier provisions of the law in case the work is later reproduced in copies for sale. New penalties for infringement were also passed. According to the new law, also, a claimant of copyright is entitled to a certificate of registration under seal of the copyright office. The registration for the fiscal year, 1912-13, numbered 119,495. There were also 1065 registrations of renewal. The fees for these registrations amounted to a total of $113,323. Of the fiscal-year registrations for 1912-13, 53,122 were of books; 46,070 were of periodicals; 50,415 were of musical compositions; 4616 of dramatic or dramatic-musical compositions; prints and pictorial illustrations, 27,824; photographs, 23,734; motion picture photoplays, 1742.

At the eighth International Publishers' Congress, held June, 1913, at Budapest, Hungary gave her adhesion to the terms of the Berne convention. The congress also recommended that authors and publishers should form an association to protect their copyrights from cinemetograph piracy.

CORDIALS. See LIQUORS.

CORN. The world's corn crop of 1913 amounted to approximately 3,540,000,000 bushels, or nearly a billion bushels less than was produced in 1912. This low production was mainly due to a short crop in the United States, where an unusually severe drouth greatly damaged the crop. As the United States produces over 80 per cent. of the world's crop, the low yield was strongly reflected in the world's supply. Reduced yields were also reported from Russia, Argentina, and Japan, while Italy and southeastern Europe generally produced better crops than in the year before. According to statistics published by the International Intsitute of Agriculture at Rome, Hungary produced about 187,000,000 bushels; Rumania, 120,000,000; Italy, 110,000,000; Russia, 75,000,000; and Egypt, 58,000,000 bushels. Data taken from other sources indicate a yield of 200,000,000 bushels in Argentina and of 128,000,000 bushels in British India.

According to the United States Department of Agriculture the estimated corn production of the country in 1913 was only 2,446,988,000 bushels, or 677,758,000 bushels less than was produced in 1912. This quantity has been exceeded many times and was 11 per cent. under the average of the preceding five years. The average yield declined from 29.2 bushels in 1912 to 23.1 bushels in 1913. The estimated area of the crop was 105,820,000 acres, a decrease of over 1 per cent. below the acreage of 1912. The value of the crop was far above the value of any other crop, being estimated at $1,692,092,000, a value not equaled by any previous corn crop. The amount was 28 per cent. of the estimated value of all crops and was over 12 per cent. above the average value of the five preceding crops. The farm price per bushel on December 1 was 69.1 cents, a figure not equaled by 5.5 cents since 1866, and this increase in price more than counterbalanced the loss in production, thus making the crop of 1913 the most valuable ever produced. The prolonged drouth during the summer had far-reaching effects. As reported by the *American Agriculturist* an area of 13,000,000 acres was abandoned as a grain crop. About 5,000,000 acres were abandoned entirely and some of the remaining acreage was used for fodder, as husking was found unprofitable. In Kansas over 2,000,000 acres were abandoned; in Nebraska, 850,000; Oklahoma, over 500,000; Missouri, 450,000; Illinois, 300,000; Texas, 230,000; Iowa, 200,000; and Indiana, 100,000 acres. As is frequently the case in abnormal seasons the quality of the grain was below the average, being only 81.1, as compared with 86.1 in 1912 and about 85 as the ten-year average.

In 1911, when the average yield was only 23.9 bushels per acre, the quality was 80.6. High temperatures in August and September hastened the ripening of the crop and when the drouth broke the rains had no effect and this advanced stage of maturity prevented damage by frost and a possible further deterioration in quality. When the crop shortage became apparent large numbers of livestock were rushed to market and some sections where corn is always the staple crop were forced to buy it to feed their stock. In Kansas the average yield per acre went as low as 3 bushels and Oklahoma produced only 11 bushels. Nebraska had an average acre yield of only 15 bushels, Missouri 18 bushels, and Illinois 27 bushels. These States form a large portion of the corn surplus area of the country when crop production is normal. The largest yield among the States was secured in Iowa, the yield being 338,300,000 bushels, which was followed by Illinois with 282,150,000, Indiana with 176,400,000, Texas with 163,200,000, Ohio with 146,250,000, and Nebraska 114,150,000 bushels. The largest area, 10,450,000 acres, was reported by Illinois, followed by Iowa, with 9,950,000; Nebraska, with 7,610,000; Missouri, with 7,375,000; and Kansas, with 7,320,000 acres. The highest average for any one State was 40 bushels per acre reported by Massachusetts, New Jersey, Wisconsin, and Minnesota.

The work for the improvement in the production, handling, and use of corn was continued in 1913 with unabated vigor by various agencies, such as the agricultural experiment stations, the agricultural colleges, the national Department of Agriculture, commercial bodies, corporations, etc. In the boys' corn club work the prize winner, living in Alabama, produced 232.7 bushels on one acre at a cost of 19.9 cents per bushel. The fifth National Corn Exposition was held at Columbia, S. C., early in the year and was pronounced a marked success. Under congressional authority the Department of Agriculture completed investigations to justify the fixing of definite grades for commercial corn. The following grades were fixed and promulgated to take effect July 1, 1914:

		Maximum Percentages of				
Grade Classification White, Yellow and Mixed Corn	Moisture	Damaged Corn			Foreign material, including Dirt Cob, Other Grains, Finely Broken Corn, etc.	"Cracked" Corn, not including Finely Broken Corn (see General Rule 9)
No. 1	14.0	2	Exclusive of heat damaged or mahogany kernels		1	2
2	15.5	4			1	3
3	17.5	6			2	4
4	19.5	8	May include heat damaged or mahogany kernels not to exceed	½%	2	4
5	21.5	10		1%	3	5
6	23.0	15		3%	5	7

All grades must be sweet except No. 6, which may be musty and sour and include corn of otherwise inferior quality. White corn must be at least 98 per cent. white, and yellow corn at least 95 per cent. yellow, and all corn not coming within these limits is to be regarded as mixed. Corn not meeting the requirements of the six numerical grades is classed as sample grade.

CORNELL UNIVERSITY. An institution of higher learning, at Ithaca, N. Y., founded in 1865. The enrollment in all departments in the autumn of 1913 was 4771, divided as follows: College of Arts and Sciences, 1120; College of Agriculture, 1354; College of Architecture, 143; College of Civil Engineering, 469; College of Mechanical Engineering, 874; College of Law, 267; College of Veterinary Science, 122; College of Medicine, 107. In addition there were enrolled, in the summer schools of 1913, 1392, and, in the winter course of agriculture, 597. The faculty numbered 750. There were no notable changes in the faculty during the year. Donations received during 1912-13 amount to nearly $300,000. The largest gift was one of $25,000, made by Andrew Carnegie, to Andrew D. White, for the benefit of the university in the celebration of the latter's eightieth birthday. The productive funds of the university amount to nearly $10,000,000, and the income to nearly $2,500,000. The volumes in the library numbered 427,000. The acting president in 1912-13 was Prof. Thomas Frederick Crane. Jacob S. Schurman, president of the university, was given leave of absence in 1912, on his appointment as United States minister to Greece.

CORPORATIONS. See Trusts, and Taxation.

CORPORATIONS, Bureau of. See Bureau of Corporations.

CORPORATION TAX. See Taxation.

CORRUPT PRACTICES ACT. See Electoral Reform.

COSTA RICA. A Central American republic between Nicaragua and Panama. The capital is San José.

Area, Population, etc. The estimated area is 48,410 square kilometers (18,691 square miles). The estimated population December 31, 1912, was 399,424, as compared with 388,266 at the end of 1911. For the latter date the population by provinces is stated as follows: San José, 121,162; Alajuela, 91,707; Cartago, 59,968; Heredia, 42,659; Guanacaste, 33,810; Puntarenas, 20,040; Limón, 18,920; total, 388,266. It must be noted that the 1911 enumeration and the 1912 estimate are incomplete, as several districts and towns were omitted. The population of the city of San José in 1912 is reported at 32,449. In 1910 immigration and emigration were 11,233 and 7236 respectively; births and deaths in 1910, 15,847 and 9723, and in 1911, 16,839 and 9483. In the primary and secondary schools, with over 1000 teachers, there are about 32,000 pupils.

Production and Commerce. Agriculture, which is the chief occupation of the people, is carried on successfully. The principal crops are bananas and coffee, but of considerable importance also are corn, sugar, beans, rice, and cacao. There is some mining of gold and silver.

Total imports and exports have been as follows: 1910, 16,984,378 and 18,009,385 colones respectively; 1911, 19,079,917 and 19,191,808; 1912, 21,675,928 and 21,427,966. The importation of gold and silver coin (included above) amounted to 20,307 colones in 1911 and 3,117,307 in 1912. The leading imports of merchandise in 1911 and 1912 were: Cotton fabrics, 2,630,653 and 1,972,182 colones; flour, 840,560 and 718,420; structural iron and steel, 549,737 and 625,108; steam railway material, 569,723 and 583,373. Other important articles of import are rice, pharmaceutical products, coal, and tobacco. Bananas and coffee make up the bulk of the exports. Their values have been as follows: In 1909, bananas 9,365,690 and coffee 5,677,146 colones; in 1910, 9,097,285 and 5,916,181; in 1911, 9,309,586 and 6,109,542; in 1912, 10,647,702 and 7,623,561. Other exports in 1911 and 1912: Gold and silver in bars, 2,517,372 and 1,625,117 colones; woods, 193,732 and 265,483; hides and skins, 188,542 and 251,073; rubber, 180,784 and 200,825; cacao, 185,806 and 182,988. At least two-thirds of the trade passes through the port of Limón. Imports and exports by countries, in thousands of colones:

	Imports		Exports	
	1911	1912	1911	1912
United States	8,836	12,480	10,582	10,639
Germany	8,627	3,200	647	1,191
United Kingdom	3,305	2,981	7,632	8,921
Central America	214	710	78	102
France	945	902	129	280
Spain	414	368	.....	.....
Italy	527	390	.....	.....
Other	1,211	650	124	241
Total	19,079	19,192	21,676	21,428

In 1912 the reported entrances at Limón were 538 vessels, of 1,129,606 tons; at Puntarenas, 87, of 178,904 tons.

Communications. The length of railway in operation is stated at 694 kilometers (431 miles). The Atlantic port Limón is connected by rail with the Pacific port Puntarenas, by way of San José. In 1912 there were 134 telegraph offices, with 2447 kilometers of wire. A wireless station is in operation at Limón. Post offices in 1912, 204.

Finance. The standard of value is gold; the monetary unit is the colon, par value, 46.536 cents. Revenue and expenditure in colones have been as follows:

	1909	1910	1911	1912
Revenue	9,280,584	11,471,967	9,707,269	9,950,672
Expend.	9,280,584	8,858,572	9,801,956	9,819,719

Of the revenue 5,829,653 colones were derived from customs in 1911, and 6,015,524 in 1912. The budget for 1914 placed the revenue at 9,200,000 colones and the expenditures at 9,013,635. Sources of estimated revenue (1914): Customs, 5,500,000 colones; liquors, 2,200,000; stamps, 160,000; posts and telegraphs, 325,000; Pacific Railway, 650,000; banana export duty, 225,000; extraordinary receipts, 140,000; total, 9,200,000. Avenues of expenditure: Legislative, 176,337 colones; government, 1,108,933; justice, 362,636; foreign affairs, 246,929; public instruction and worship, 1,535,309; war, marine, and police, 1,303,030; finance, 3,067,137; public works, 1,213,320; total, 9,013,635. Public debt, as reported for December 31, 1911: Foreign, £1,617,200; internal, 11,879,441 colones. A further foreign loan of 35,000,000 francs was issued about the end of 1911 to pay off the bonds of the Pacific Railway and the internal debt. Money in circulation at the end of 1912 amounted to 4,406,375 colones in paper and 3,659,938 in coin.

Government. The president is elected indirectly for four years and is not eligible for the immediately succeeding term. The Congress consists of a single chamber of 43 deputies, also elected indirectly. The president in 1913 was Ricardo Jiménez, who was inaugurated May 8, 1910, succeeding Cleto González Víquez.

History. In his message to Congress on May 1, President Jiménez devoted considerable attention to finances. The actual revenues for the past year had amounted, according to his report, to 9,950,671 colones, giving a surplus of 630,952 colones over the expenditures of 9,319,719 colones. The government was especially solicitous for the furtherance of education; 1,291,832 colones had been expended for schools and colleges in the preceding year, and Congress was asked to increase the inheritance tax for the benefit of the School of Arts and Crafts and the hospital fund. The president also recommended to Congress a project for the construction of a railway in the province of Guanacaste. Among the measures passed by Congress was a law restricting the armed force of the president to 1000 in time of peace and 5000 in case of insurrection. Presidential elections were held on December 10. The candidates were Rafael Iglesias, Maximo Fernandez, and Carlos Duran, the latter being supported by President Jimenez. Early returns indicated an indecisive vote, it will therefore be incumbent upon Congress to elect one of the two highest candidates, Carlos Duran or Maximo Fernandez.

COST OF LIVING. See Food and Nutrition. Parcel Post, and Prices.

COTTON. The International Institute of Agriculture at Rome on December 20, 1913, estimated the cotton crop of the United States, India, Egypt, and Japan at 18,592,000 bales of 500 pounds each. The United States Department of Agriculture on December 12, 1913, estimated the cotton crop of this country at 13,677,000 bales of 500 pounds each, a somewhat smaller crop than that of 1912, but more than a million bales greater than the average of the past five years. The money value of the crop at that date was estimated at $797,841,000, a decided increase over that of 1912, owing to a higher market price. On December 13, 1913, there had been reported to the U. S. Bureau of the Census as already ginned 12,923,606 running bales. On the same date in 1912, 92.5 per cent. of the crop had been ginned. In the ginning report there are included 91,683 round bales, each counted as half a bale, and 69,312 bales of Sea Island cotton. The Sea Island cotton was produced as follows: Florida, 24,126; Georgia, 38,806; and South Carolina, 6380 bales.

The crop for 1912, estimated crop for 1913, and amount ginned on December 13, 1913, exclusive of linters, by States were as follows:

States	Crop of 1912 500-lb. bales	Estimated crop, 1913 500-lb. bales	Reported ginned Run. bales
United States..	13,703,421	13,677,000	12,923,606
Alabama	1,342,275	1,510,000	1,444,603
Arkansas	792,048	900,000	884,702
Florida	52,760	68,000	63,032
Georgia	1,776,546	2,275,000	2,213,426
Louisian	376,096	400,000	391,266
Mississippi	1,046,418	1,195,000	1,084,584
North Carolina	865,653	765,000	706,252
Oklahoma	1,121,250	820,000	791,623
South Carolina	1,182,128	1,330,000	1,276,402
Tennessee	276,546	375,000	340,546
Texas	4,880,210	3,930,000	3,627,410
All other States.	91,491	109,000	99,760

Of the crop of 1912 among the States listed as "all others," Missouri produced 55,691, and Virginia 24,398 bales. In 1913 Missouri is estimated to have grown 66,000, Virginia 25,000, and California 18,000 bales. Cotton, in commercial amounts, was also produced in Arizona, New Mexico, Kansas, and Kentucky. The estimated crops of Texas and Oklahoma for 1913 were about 1,200,000 bales less than in 1912, due to the excessive drought, but in nearly every other State an increased production was shown.

In addition to the cotton crop of 1912 there were produced 602,324 bales of linters and 6,104,000 tons of seed, of which 4,579,508 tons were crushed for oil. The estimated value of the cotton seed products was $132,230,000. The cultivation of Sea Island cotton in the United States does not seem to be increasing, and the crop of 1912, which was 73,777 bales, was the smallest, with one exception, since 1899, and it was probable the crop of 1913 would not be much greater than that of 1912. In 1912 the British West Indies exported 7621 bales, most of which was Sea Island cotton produced in Barbados and St. Vincent. The growing of Egyptian cotton in Arizona and California was being extended and preparations were being made to plant 5000 acres in 1914. This amount was thought to be greater than could be harvested owing to a lack of experienced pickers. In California, especially in the Imperial Valley, the growing of a long staple upland cotton had proved very successful. The development of the cotton industry in Hawaii had been greatly impeded by the pink bollworm, a pest that was also becoming quite serious in Egypt.

The world's production of cotton for mill consumption was somewhat less in 1912 than in the previous year, a loss of about 300,000 bales being reported. The contributions of the leading countries to the mill suply of 1911 and 1912, according to the United States Census, were as follows:

Country	1912 500-pound bales	1911 500-pound bales
Total	21,817,000	22,151,000
United States..............	13,696,000	15,546,000
India	3,518,000	2,680,000
Egypt	1,523,000	1,463,000
China	1,074,000	625,000
Russia	950,000	925,000
Brazil	320,000	320,000
Mexico	140,000	100,000
Peru	128,000	128,000
Persia	118,000	80,000
Turkey	115,000	124,000
All other countries........	235,000	210,000

The world's consumption of cotton for the year ending August 31, 1913, was 20,277,836 running bales, of which the United States supplied 13,760,261, or about 67 per cent. On the same date there were 3,540,771 bales in warehouses, mills, or in transit, 1,622,366 bales of which were American. Of the 143,453,659 spindles reported in the world it was estimated that 129,895,651 were at work during the year. The number of active spindles in the United States on August 31, 1913, was 30,590,553, of which 11,971,092 were in the cotton States and 18,619,461 in all other States. The exports of cotton from the United States for the year ending August 31, 1913, were 8,779,338 bales and the imports were 227,616 bales, about three-fourths of which came from Egypt.

Data regarding the cotton crop for 1913 were rather meagre at the end of the year. The crop in India was believed to be somewhat greater than in the previous year, and in Egypt the government estimate of 1,515,000 bales would indicate about the same outturn as that of 1912. In India the acre yield continued very low, but experiments were in progress in breeding new varieties adapted to the country but of higher yielding quality. Cambodiana cotton, a variety resembling the American upland cotton, was proving well adapted to growing under irrigation in the south of India. In Egypt the pink bollworm continued to be considered a serious menace to the crop. English, German, and French organizations continued their activities toward extending the colonial production of cotton. The British Cotton Growing Association was the most active of these agencies. It reported favorably on the crop of Uganda, estimating it at double that of 1912. In Nyassaland there was a decided falling off in cotton production except in the lowlands, where the cultivation is entirely in the hands of the natives. The crop of 1912 was 3474 bales, valued at $287,207. In Lagos there were produced in 1912 for export 9146 bales, and in northern Nigeria, 2627 bales. The total amount of cotton shipped to England from her colonies, India excepted, in 1912, was 55,662 bales, as follows: West Africa, 10,796; East Africa, 36,667; West Indies, 7337; and miscellaneous, 862. The British Cotton Growing Association began an active campaign in Australia by contributing to experimental investigations and offering a guaranty of 13 cents a pound for cotton produced in 1914.

A British syndicate of cotton spinners was reported to have purchased a tract of 25,000 acres in the Yazoo Delta region of Mississippi on which to grow long staple upland cotton. A large British loan was reported for railroad and irrigation development with a view to increasing the production of cotton in the Sudan. The German colonial committee continued its efforts to develop cotton growing in German East Africa, more than 560,000 pounds of seed having been distributed gratuitously during 1912. Egyptian cotton failed except in a few localities, but certain types of upland cotton gave better results. In Togoland experiments with Sea Island cotton gave satisfactory results, and the area planted to this crop was to be extended. The 1912 production of cotton grown under the auspices of the French Colonial Cotton Association was 2772 bales. A recent writer called attention to the great loss due to insects following the introduction of American cotton into various parts of Africa. In the Sudan the borer, *Sphenoptera gossypii*, caused great injury, other insects destroyed the Egyptian cotton in German East Africa, and the bollworm in Dahomey. In most instances the less valuable native varieties suffered but little loss. The Argentine government sought to encourage the cultivation of cotton by distributing seed, building roads, and providing purchasing facilities. The crop in Turkestan and Transcaucasia for 1913 was the most satisfactory ever produced. Most of it was grown from American seed. Cotton cultivation in Siam was increasing, most of it being ginned and marketed through Bangkok. Algeria established a rigid quarantine on the importation of cotton seed, and all that came into the country had to be fumigated with hydrocyanic acid gas and treated with a corrosive sublimate solution to destroy all insect and fungus pests.

WORK OF THE U. S. DEPARTMENT OF AGRICULTURE. The preparation and distribution of standard cotton grades continued, and they were distributed in 40 States and 10 foreign countries. These standards were adopted by the New York Cotton Exchange in December, 1913, having been previously adopted by a number of the other important exchanges and cotton associations in this country. The third annual opening of a set of cotton samples stored in vacuum tubes showed no deterioration in the samples, indicating the permanency of the official standards. An investigation showed errors in expert grading of cotton of from one to three-sixteenths of an inch in length of fibre, indicating the necessity of standards for length. Experiments conducted by the department showed that the quality of fibre was markedly improved by storing cotton for some time before ginning. A study was begun on coöperative cotton handling and marketing, and the investigation showed that much cotton was undergraded in buying, owing to a lack of fixed standards. The effect of heating cotton seed in storage was investigated, and it was found that when the temperature rose to 110° F. only 5 to 13 per cent. germinated, and if the temperature went to 127° none sprouted when tested. The work of the department in introducing and establishing new varieties of cotton adapted to certain conditions was actively continued. The Durango cotton, recently acclimated from Mexico, seemed better adapted to irrigation farming in the Southwest than any other long staple cotton tested. It was extensively planted in the Imperial Valley in California, about 5500 acres being planted to this variety in 1913, the acreage being limited only by the seed supply. In the Salt River Valley, Arizona, about 4000 acres were planted to Egyptian cotton in 1913, following a very successful demonstration in 1912, when an average of a bale to the acre was obtained. The work in farm demonstration, begun after the advent of the boll weevil in the South, was actively continued, and in 1912 the average yield of seed cotton on the demonstration farms was said to have been 1054.8 pounds per acre, as compared with State averages of 579.6 pounds.

The Bureau of Entomology reported upon the advance of the cotton boll weevil during 1913. The advance was about 50 miles in its northern and eastern distribution. This pest had nearly reached Tennessee on the north, and the extreme southwest of Georgia on the east. About one-half of Alabama was covered by it in 1913, and it was found in ten counties of Florida. In Arizona a boll weevil so greatly resembling the Mexican species as to be called a variety was found feeding upon the so-called wild cotton, *Thurberia thespesioides*. From the feeding habit of the new variety it was quite probable that it would readily transfer its activities to cotton if that plant should be present. The Federal horticultural board recommended a quarantine against seed from Mexico and Hawaii on account of the reported presence of the pink bollworm, and it became effective on July 1, 1913.

COTTON TARIFF. See TARIFF.

COUNTRY LIFE MOVEMENT. See AGRICULTURE.

COURT HOUSE, NEW YORK CITY. See ARCHITECTURE.

COURT TENNIS. See TENNIS.

COWDRAY, LORD. See MEXICO, *History*.

COWS. See DAIRYING, STOCK-RAISING, and MEAT PRODUCTION.

CRAIGIE, DAVID JOHNSTON. An American soldier, died December 15, 1913. He was born in Broomieside, Scotland, in 1840, moving with his parents to the United States when a child. In 1861 he enlisted as first lieutenant in the Eighth Iowa Volunteer Infantry, served throughout the Missouri campaign and in the battles in which General Grant started the Mississippi campaign, and at the end of the Civil War enlisted in the regular army. At the outbreak of the Spanish-American War he was captain in the Twelfth Infantry; was promoted to be major in 1898; and lieutenant-colonel in 1901. He served with the army in the Philippines, and in 1903 was appointed a brigadier-general and placed on the retired list at his own request.

CRAMP, CHARLES HENRY. An American shipbuilder, died June 6, 1913. He was born in Philadelphia in 1828, the son of William Cramp, also a shipbuilder. After having served an apprenticeship in shipbuilding, he began work in the yards of his father. At the death of the latter, he became the head of the company, which at that time was small. In 1878 he built his first warship, the *Zambica*, for the Russian government. Following this he designed hundreds of ships and marine engines, and his technical knowledge and practical experience were often used to advantage by the United States government. In 1903 the Cramp's Industry was incorporated, and Mr. Cramp, on account of his advanced age, retired from the presidency. This company came to be one of the largest shipbuilding establishments in the world. Mr. Cramp took an active iterest in civic and municipal affairs, and in 1889 succeeded Dr. William Pepper as president of the board of trustees of the Philadelphia museums.

CRAWFORD, James Ludovic Linsay, 26th Earl of. A Scotch nobleman and astronomer, died January 31, 1913. He was born at St. Germaine-en-Laye, France, in 1847, and was educated at Eton and at Trinity College, Cambridge. He succeeded his father as Earl of Crawford in 1880. From 1874 to 1880 he was member of Parliament from Wigan. He was a student of astronomy, and was former president of the astronomical society. He was one of the trustees of the British Museum.

CRAWFORD, Samuel Johnson. An American soldier and public official, died October 21, 1913. He was born in Lawrence County, Ind., in 1835, and was educated in the public schools. After studying law, he was admitted to the bar in 1856. Two years later he removed to Garnett, Kan. At the outbreak of the Civil War he was appointed captain of the Second Kansas Cavalry. He served until 1865, rising to the rank of brigadier-general of volunteers. From 1865 to 1869 he was governor of Kansas. He was the author of *Kansas in the Sixties*.

CREDIT BANKS. See Agricultural Credit.

CRETE (or Candia). A Mediterranean island, formerly under the suzerainty of Turkey and administered under the supervision of France, Great Britain, Italy, and Russia. The king of Greece was invested in August, 1906, with the right of nomination of a high-commissioner. On the eve of the Balkan War, the Greek premier, Venezelos, formally declared (October 14, 1912) the union of the Greek and Cretan legislative bodies, and named St. Dragoumis governor-general of Crete for the king of Greece. In virtue of article 4 of the treaty of London (May 31, 1913), Turkey ceded Crete to the allied Balkan states. The powers had not, up to the end of 1913, formally recognized its union with Greece. The governor-general (1913) was L. Roufos Kanakaris.

The island has an area of 3327 square miles, and a population (1911) of 344,001 (307,812 Christians, 27,852 Mohammedans, 487 Jews, etc.). There is a fine anchorage at Suda Bay. The leading products are wheat, fruit, wool, soap, olive oil, carobs, vallonea, and cheese. The 1910 imports amounted to 19,650,000 drachmas, and the exports to 17,477,000. Tonnage entered, 1,811,865. The revenue for 1909-10 was 6,024,729 drachmas, the expenditure 8,567,251; the debt stood at 5,317,226 drachmas. Canea, the capital, has 24,399 inhabitants; Candia, 25,185; Rethymo, 9086.

History. The ardent ambition of the Cretans to free their island from the sovereignty of Turkey and from the tutelage of the four protecting powers—Great Britain, France, Russia, and Italy—and to annex it to the Greek kingdom, so long thwarted, was at last realized as a result of the Balkan War of 1912-13 (see Turkey and the Balkan Peoples). In fact, the reception of Cretan deputies in the Greek Assembly in October, 1912, had been one of the excuses for the outbreak of that war. A few days after the declaration of hostilities the powers, who had already in July, 1909, withdrawn their troops, caused the Turkish flag to be lowered at Canea. The last vestiges of Ottoman suzerainty at once disappeared, and during the next few months the islanders fought shoulder to shoulder with their fellow-Greeks of the Greek kingdom. Greece gradually took over the entire government of the island, and, in May, M. Dragoumis was appointed governor-general. By the Treaty of London (May 30), Turkey renounced all sovereignty over Crete. The union of the island with Greece was formally recognized by the other Balkan states by the Treaty of Bucharest (August 10), and by the great powers subsequently. The capitulations and all other privileges enjoyed by foreigners in the Ottoman Empire were speedily abolished by the Greek government in so far as they affected Crete. In December King Constantine, accompanied by M. Venezelos, the Greek premier and a Cretan by birth, made a state trip to Crete to take possession of the island, and on the fourteenth hoisted the national flag upon the fortress of Canea. See also Greece, *History*.

The annexation of Crete brings to Greece an accession of a population intelligent and full of vigor, who will be an important factor not only in her army but also in the civil activities of the country. The Cretan gendarmerie, better trained and disciplined than the Greek police ever was, had already, during the war, rendered splendid service to public security, especially in Salonika.

CRICKET. The visit of the Australian players to the United States, Canada, and Bermuda aroused considerable interest in cricket circles in 1913. The Australians played 52 matches in all, winning 48, drawing 3, and losing 1. C. G. Macartney, a member of the traveling team, scored 2379 runs in one of these contests. A new record was made in the international matches by W. F. O'Neill of the Germantown Club, who caught out 10 Australians. The Montreal A. A. sent a team to the United States in July. The visitors won against the Merion Club, drew with Germantown and Philadelphia, and lost to the New York Veterans and Staten Island. The University of Pennsylvania, winner of the intercollegiate championships, in a trip to Bermuda, won matches against Garrison and Hamilton, and lost one match to Hamilton. The annual international match between the United States and Canada was postponed. The New York Veterans won the championship of the New York and New Jersey Cricket Association. In the Metropolitan District Cricket League, the Brooklyn Club won both the class A and class B championships. Cambridge defeated Oxford in their annual contest at Lords, London, by four wickets.

CRILE ON SHOCK. See Anæsthesia.

CRIME. See Penology.

CRIMINOLOGY. See Penology.

CRITICISM. See French Literature; German Literature; and Literature, English and American.

CROATIA. See Austria-Hungary.

CROCKER LAND EXPEDITION. See Polar Exploration, *Arctic*.

CROP PRODUCTION. See Agriculture.

CROSS, Joseph. An American jurist, died

October 29, 1913. He was born at Morristown, N. J., in 1843, and graduated from Princeton University in 1865. He took post-graduate studies at that university, receiving the degree of A.M in 1868. After studying law at the Columbia Law School he was admitted to the bar in the latter year. He practiced until 1905, when he was appointed United States district judge in New Jersey. In 1894 he was a member of the New Jersey legislature, and its speaker; and a member of the State Senate from 1899-1905.

CROSS-COUNTRY RUNNING AND MARATHONS. The senior metropolitan cross-country championship run was won by Hannes Kolehmainen of the Irish-American A. C., his time being 33 minutes 30¾ seconds. S. L. Leslie of the Long Island A. C., finished second, and R. S. Springsteen of the Yonkers Y. M. C. A., third. The team scores were: Irish-American A. C., 19; New York A. C., 45; Long Island A. C., 70; Bronx Church House, 110; Kolehmainen also won the National A. A. U. ten-mile run, breaking all records from 3½ miles to the finish. His time was 51 minutes 3⅗ seconds.

The English cross-country championships, held at Wolverhampton, England, were captured by E. Glover of the Hallamshire Harriers, in 51 minutes 1⅘ seconds. G. C. L. Wallach won the Scottish 10-mile championship at Glasgow, his time being 53 minutes 1 second. English runners were the victors in an international cross-country race at Paris, with a score of 38 points. France was second with 61 points, Scotland third with 96 points, and Wales fourth with 150 points. The individual winner was J. Bouin of France. E. Glover, the English cross-country champion, finished second.

In the American intercollegiate cross-country run, held in New Yor City, Cornell wrested the championship from Harvard. R. St. Boyd of Harvard was the individual winner in 34 minutes 37 seconds. J. S. Hoffman of Cornell finished second in 34 minutes 55 seconds, and W. B. McCurdy of Pennsylvania, third, in 35 minutes 1 second. The scores and order, at the finish, of the various colleges entered were: Cornell, 68; Harvard, 92; Massachusetts Institute of Technology, 103; Pennsylvania, 107; Princeton, 114; Dartmouth, 125; Brown, 143; Yale, 146; Syracuse, 224; Pennsylvania State, 236; Columbia, 333; Michigan, 335. In dual college cross-country runs, Harvard defeated Cornell; Princeton defeated Yale; Yale defeated Harvard; Pennsylvania defeated Cornell, Columbia, and Carlisle; Lafayette defeated Rutgers and Lehigh; Wisconsin defeated Minnesota. The Western Conference cross-country race, held at Columbus, Ohio, was won by Wisconsin. Illinois was second and Ohio State third.

The results of the principal amateur Marathons in 1913 were: Boston A. A., 25 miles, won by Fritz Carlson of Cookes Gynasium, Minneapolis, in 2 hours 25 minutes 14⅘ seconds; Missouri A. C., 25 miles, won by W. J. Kennedy of the Illinois A. C., of Chicago, in 3h. 2m. 11s.; modified Marathon, New York, 12½ miles, won by Hannes Kolehmainen of the Irish-American A. C., in 1h. 5m. 15⅗s.; Yonkers Marathon, 25 miles, won by James Duffy of the Eaton A. C. of Toronto; international Marathon race at Berlin, won by C. Ludette in 2h. 34m. 12s.; Polytechnic Marathon at London, won by A. Ahigen of Sweden in 2h. 36m. 6⅗s.

In professional racing, William Kolehmainen made the best showing of the year. He defeated William Queal in a 15-mile indoor race at Boston—1h. 19m. 17s., and Alfred Raines and George Hooley in a 12-mile race at Brooklyn—55m. 25s.; and won the 10-mile Derby at Toronto—52m. 57⅖s. Hans Holmer won the British professional 1-mile championship, in 4m. 25⅖s., and defeated George Dunning in a 10-mile race at Carlisle, England, in 52m. 58⅗s., and F. Vermeulin in a 10-mile race at Manchester, England, in 54m. 11⅕s.

CRUISERS. See BATTLESHIPS.

CRUSTACEA. See ZOÖLOGY.

CURRENCY REFORM. See BANKS AND BANKING.

CRYSTALS. See PHYSICS.

CUBA. A republic of the West Indies. The capital is Havana.

AREA, POPULATION, ETC. Cuba is the largest of the West Indian Islands. Its area, with adjacent islands, is 44,164 square miles, or nearly the area of Pennsylvania. The census of 1907 returned 2,048,980 inhabitants. In 1910 the population was placed at 2,220,278, and in 1912 at 2,473,600. In 1907, 69.75 per cent of the people were white, 16.40 mulatto, 13.28 black, and 0.57 yellow. Population of the larger cities (1907): Havana, 297,159; Santiago de Cuba, 45,470; Matanzas, 36,009; Cienfuegos, 30,100; Camagüey, 26,616; Cárdenas, 24,280. In 1911, marriages 12,864, births 74,286, deaths 33,194, immigrants 38,053; of the immigrants, 32,104 were Spaniards, 1369 North Americans, 932 British, and 128 Germans. The republic is divided into six provinces: Habana (Havana), Pinar del Río, Matanzas, Santa Clara, Camagüey, and Oriente.

Under American rule the primary and secondary school systems were reorganized and educational opportunities extended, but illiteracy is still common. As reported for February 3, 1911, there were 3774 public primary schools, with 3856 teachers, an enrollment of 152,658 pupils, and an average attendance of 105,774; pupils in private schools, 24,434. There are several institutes and colleges, and at Havana a university with about 600 students.

PRODUCTION AND COMMERCE. Cuba and British India are the greatest producers of cane sugar in the world; and in recent years the Cuban crops have increased notably. The economic prosperity of the republic is now dependent on sugar. Next to sugar in commercial importance is the tobacco crop, which is cultivated especially in Pinar del Río, and makes possible a large and valuable manufacture of cigars and cigarettes. Besides sugar and tobacco valuable crops are fruits (especially pineapples, cocoanuts, and bananas), potatoes and other vegetables, cereals, coffee, and cacao. Cattle-raising is carried on extensively in some parts of the country, especially in Camagüey. Tivestock on farms at the end of 1911 and 1912 respectively: Horses, 457,279 and 560,580; mules, 30,799 and 41,192; asses, 1886 and 2298; cattle, 2,329,423 and 2,829,553. There are large mineral resources, especially in Oriente, including iron, copper, manganese, lead, zinc, gold, and salt.

In the calendar year 1912, imports and exports were valued at $125,902,241 and $172,978,-328, respectively, as compared with $113,266,-

997 and $123,136,379 in 1911. For fiscal years ended June 30, imports and exports have been as follows:

	1909	1910	1911	1912
Imp.	$91,447,581	$103,675,581	$108,097,782	$120,229,317
Exp.	124,711,069	150,909,020	129,178,865	146,787,295

Leading imports in 1911 and 1912, respectively, in thousands of dollars: Breadstuffs, 12,989 and 13,904; cotton and manufactures, 9278 and 11,686; meats, 10,631 and 11,242; machinery, 9137 and 9553; iron and steel and manufactures, 6513 and 7226; vegetables, 4492 and 4905; manufactures of leather, etc., 4756 and 4593; chemical products, 3063 and 3999; beverages and oils, 3224 and 3552.

In the fiscal year 1912 the export of raw sugar was 3,546,603,593 lbs., worth $101,542,170, of which 3,285,417,936 lbs., worth $93,772,941 went to the United States; refined sugar, 20,574,573 lbs., $491,346, practically all to the United States. In the same year the export of leaf tobacco amounted to 23,684,944 lbs., worth $13,819,823, of which 16,769,318, worth $11,613,718, to the United States; stems, 5,385,144 lbs., worth $3,575,702, of which $3,340,591 to the United States. The export of molasses and sugar syrup in 1912 was valued at $1,390,275; the molasses amounted to 42,812,173 gallons, valued at $1,387,893. Other exports in 1912: Coconuts, 4,741,000; oranges, 8,003,748 lbs.; pineapples, 30,381 tons (worth $1,117,709); bananas, 36,317 tons ($873,092); iron ore, 1,250,642 tons ($3,174,618); copper ore, 71,801 ($576,870); cedar, $914,420; mahogany, $802,473. The values in thousands of dollars of leading exports have been as follows, in fiscal years:

	1909	1910	1911	1912
Sugar	79,130	108,763	85,169	102,034
Tobacco, unmfd.	19,085	15,451	16,889	17,399
" mfd.	12,900	12,423	13,099	13,057
Iron, gold, and copper ores	3,362	4,350	3,874	3,910
Fruits	2,359	2,098	1,836	2,264
Wood	1,516	1,663	2,110	1,810
Hides and skins	1,482	1,895	1,707	1,667
Molasses & syrup	1,557	1,478	1,197	1,390
Bee products	986	704	748	821
Distilled products	360	356	432	580
Sponges	272	355	299	300

Imports and exports by countries, for fiscal years, in thousands of dollars:

	Imports		Exports	
	1911	1912	1911	1912
United States	57,128	62,826	113,451	122,969
United Kingdom	12,759	14,834	5,087	11,067
Spain	8,528	9,982	745	480
Germany	7,209	7,534	3,692	3,690
France	5,539	6,900	1,405	2,509
Other American	8,411	10,187	3,326	4,372
Other European	6,033	5,369	823	916
All other	2,492	2,598	650	785
Total	108,098	120,229	129,179	146,787

Entered at the ports in the foreign trade, 1911: 1573 vessels, of which 1448 steam; coastwise, 1623 vessels, 1448 steam.

COMMUNICATIONS. At the beginning of 1911, there were 3433 kilometers (2133 miles) of railway in operation; telegraph, 8151 kilometers of line and 9952 of wire, with 180 offices; wireless telegraph stations, 10; post offices, 496. The Central Northern Railway had under construction the Dolores-Yaguajay line.

FINANCE. For the fiscal year 1913 the budget showed estimated revenue of $37,940,000 and estimated expenditure of $33,947,117. Sources of revenue: Customs, $26,434,000; consular dues, $500,000; excise, $3,900,000; lottery, $3,700,000; direct taxes, $1,113,000; posts and telegraphs, $1,076,000; other, $1,217,000. The larger estimated disbursements: Administration, $10,117,394; public instruction, $4,782,653; sanitary service, $3,781,987; public debt, $3,710,500; public works, $3,704,625; finance, $3,329,504. Public debt (1910) $62,083,100.

GOVERNMENT. The Congress consists of the Senate (24 members, elected indirectly for eight years) and the House of Representative (83 members, elected by direct vote for four years). The president and vice-president are elected by indirect vote for four years. The president is assisted by a cabinet of eight members. Gen. José Miguel Gómez served as president for the term January 29, 1909-May 20, 1913.

HISTORY. On May 20 the president-elect, Gen. Mario Garcia Menocal, and the vice-president-elect, Dr. Enrique José Varona, were formally inaugurated. The new president immediately formed a cabinet, in which Col. Coeme de la Torriente was secretary of state; Col. Aurelio Hevia, secretary of the interior (*gobierno*); Dr. Leopoldo Cancio, secretary of the treasury; Dr. Enrique Nuñez, secretary of sanitation and charities; Dr. Cristobal de la Guardia, secretary of justice; Gen. Emilio Nuñez, secretary of agriculture; Sr. José Ramón Vilalón, secretary of public works; and Dr. Ezequiel Garcia, secretary of education.

The presidential message, delivered on May 21, commented on the orderly change of administration, promised wise and prudent conduct in office, and recommended the immediate reform of finances. As an example of economy, President Menocal volunteered to do without the $25,000 which had been regularly allowed for the president's secret service. Many debts had been bequeathed to Gen. Menocal's government by the Gomez (Liberal) administration, and several concessions granted by Gomez were regarded by the Conservatives as illegal and unfair. The most prominent of these was the concession granted to the Ports Improvement Company of Cuba (owned largely in England and Germany), which was allowed to collect a surtax on the merchandise of incoming vessels in return for dredging harbors and carrying out other improvements. The concession was declared *null and void* on August 4, the secretary of public works took charge of harbor-improvement, and a commission was appointed to investigate the criminal responsibility of the directors of the company. In the course of the, as yet, unfinished inquisition, facts were revealed which might convict various officials of the Gomez administration of the falsification of a public document and the usurpation of authority. Ex-secretary of public works Carrera and Felipe San Pedro, auditor, were indicted on November 4, for misappropriation of funds.

Considerable excitement was caused by the action against the Ports Company, but even more feeling was aroused over the question of finance. President Menocal proposed to raise a loan of about $15,000,000 to pay off old debts and to pay for paving, road-repairs, and sewer construction in Havana. The Liberals in Congress, however, refused to pass the budget, and made it necessary for the president, by a decree published July 2, to declare the budget of 1912-13 still in force pending the adoption of new financial provisions. A special session was called in July, and again in October, but the Liberals obstinately absenting themselves from Congress, prevented the securing of a quorum. These obstructionist tactics were severely censured by Gen. Menocal in a manifesto of October 21, and rumors were current that he would use force if persuasion failed. The Liberals replied with a counter-manifesto protesting against President Menocal's coercive attitude, opposing the loan project, and claiming that the October special session was illegal, inasmuch as the summer special session had not been adjourned. The opposition weakened soon after the opening of the regular session of Congress, November 3, and the Liberals agreed to attend Congress and discuss the loan. In December the loan was approved and Congress adjourned to January 14.

On March 6 an amnesty bill, which would have set at liberty several hundred political and other criminals, was objected to on the part of the United States by Secretary of State Bryan. The bill was thereupon vetoed by President Gomez; but was again passed on April 25 in modified and inoffensive form. In November a revision of the amnesty law was attempted, and the Senate passed an amendment extending pardon to negro rebels and former office-holders of the Gomez administration. Among those whom the amnesty was calculated to benefit were Governor Asbert of Havana province, Senator Vidal Morales, and Representative Arias, who had been indicted for the murder of Chief of Police Gen. Armanda Riva on July 7.

An anti-clerical bill proposed in the House of Representatives in December would forbid processions and street services by priests in vestments, put a stop to the immigration of monks and nuns, and close the cemeteries of religious houses.—On May 13 new and comprehensive health laws were promulgated.—On June 1 the railway connecting Cabarien with Yaguaial and Mayajuagua was opened.—On November 9 a small revolt was started by Crecencio Garcia, a mulatto, in Santa Clara province; the rebels were easily subdued by the rural guards. On November 24 the hotels and cafés of Havana closed at 6 P. M. as a protest against the enforcement of a ten-hour labor law.

It was expected that General Menocal's presidency would improve the relations between Cuba and the United States, inasmuch as he had long been interested in the sugar industry and desired commercial development of Cuba in harmony with the interests of the United States. In reply to President Wilson's message of congratulation in May, General Menocal said, "I shall endeavor to cement the friendly ties which bind our republic to the United States. Cuba will deserve the unqualified confidence and support of the American people and expects to have their aid in firmly establishing its right to national life."

CUBISTS. See PAINTING AND SCULPTURE.

CUMBERLAND PRESBYTERIAN CHURCH. During 1913, as a result of the litigation between this denomination and the Presbyterian Church in the United States of America which has continued since 1906, the Cumberland Church surrendered its publishing house in Nashville, but saved for itself its books, plates, and periodicals. The total membership of the denomination in 1913 is estimated at 115,000. The difficulties between these two denominations date from the effort made in 1906 to combine the Cumberland Presbyterian Church in the United States of America. The general assemblies of both churches in 1903 appointed committees of fraternity and union. These formulated the basis of union, which was approved by the general assemblies in 1904, and was ratified by the Presbyterian Church body in 1905, when the general assemblies took action for the organic union of the two forces. Opposition to this action arose in the Cumberland Church, and a protest was filed against the constitutionality of the assembly's action. In 1906 the assembly by a vote of 165 to 91, approved the report. The opposition then filed a protest, and determined to "continue and perpetrate the general assembly of the Cumberland Presbyterian Church as the same was constituted and organized May 17, 1906." From that time, efforts were directed by the authorities of the Presbyterian Church of the United States of America to obtain possession of the property of the Cumberland Presbyterian Church, while the former resisted this action. This led to many suits in different States which have continued down to the present time. See also RELIGIOUS DENOMINATIONS AND MOVEMENTS.

CUNIBERTI, MAJOR-GENERAL V. E. Italian naval constructor, died December 20, 1913. He was an early advocate of the one-calibre-all-big-gun ship; and was among the first to advocate liquid fuel for marine boilers. He more recently designed a torpedo battleship, "a monster submarine." As a lieutenant in the Naval Construction Corps, he came under the notice of Benedetto Brin, who quickly recognized his exceptional ability. He was sub-director of the Castellamare Arsenal, director of naval construction in Naples, member and later president of the commission for naval design, and a designer of great originality.

CURAÇAO. A Dutch colony of the West Indies, having a total population (December 31, 1910) of 54,469. Area of Curaçao, 212 sq. miles; total area including other islands which compose the colony, 436 sq. miles. Imports (1910), 3,162,310 guilders; exports, 1,716,886. Revenue (1912 estimate), 690,000 guilders; expenditure, 1,107,000.

CURRENCY REFORM. See BANKS AND BANKING.

CURTIN, ROLAND GIDEON. An American physician and writer, died March 14, 1913. He was born in Bellefonte, Pa., in 1839, and was educated at Williston Seminary. At the University of Pennsylvania he took an M. D. in 1866, and in 1868 he became surgeon of the U. S. Geological Survey. In 1875 he was appointed lecturer on physical diagnosis at the University of Pennsylvania, and this position he held until 1895. He was the author (with Dr. F. W. Watson) of: *Influenza* (1893); *Medical Pilgrimage to Panama* (1905); and of over one hundred articles for medical journals and text books.

CURTISS, G. H. See AERONAUTICS, *passim*.

CURTIS, JOHN GREEN. An American physiologist and educator, died September 20, 1913.

He was born in New York City in 1840, and graduated from Harvard College in 1866. Two years later he received his A. M. from Harvard. From the College of Physicians and Surgeons in New York he took his degree in 1870, and on graduation was appointed assistant and demonstrator of anatomy there. He became adjunct lecturer in 1875, adjunct professor of physiology 1876, professor of physiology 1883, and in 1909 was made emeritus professor of physiology. He wrote *American Text Book of Physiology* (1896), and contributed on medical subjects to medical journals.

CUSTERITE. See Minerology.

CYCLING. Frank L. Kramer had little difficulty in retaining his title as professional sprint champion of the United States. He scored a total of 49 points made up of 7 firsts, 2 seconds, 3 thirds, and 2 fourths. Alfred Goullet for the second successive year was ranked second, with 33 points made up of 3 firsts, 4 seconds, 2 thirds, and 2 fourths. A. J. Clarke scored 31 points, winning 4 firsts, 2 seconds, 2 thirds, and 1 fourth. Alfred Grenda's total was 23 points, with 6 seconds, 1 third, and 3 fourths. The N. C. A. professional paced championship was run under new conditions, being decided by a 50-mile race at Revere Beach, Boston. George Wiley of Syracuse won the event for the second year in succession. Worth L. Mitten of Davenport, Iowa, finished second, and James F. Moran of Chelsea, Mass., third. The American amateur championship again went to Donald McDougall of Newark, who took 5 firsts. Aubrey Taylor was second with 1 first and 2 seconds. The world's amateur championships were decided at Berlin, William Bailey of England winning the sprint, while Leon Meredith of the same country was victor in the 100-kilometer paced event. Walter Rutt of Germany won the world's professional sprint championships held at Leipsic, Thorwald Ellegard of Denmark finishing second. Paul Guignard, title holder, won the 100-kilometer paced event.

Donald McDougall established four new records in 1913 in amateur competition, unpaced. They were: ¼-mile, 28 ⅕ seconds; ⅛-mile in handicap, 37 seconds; ½-mile in handicap, 55⅖ seconds; and ⅔-mile in handicap, 1 minute, 14⅘ seconds. S. H. Wilcox made two new professional records against time, motor-paced, by covering the ¼-mile in 18⅘ seconds, and the ½-mile in 37⅗ seconds.

The annual 6-day race held in Madison Square Garden, New York, December 8-13, was won by the Fogler-Gouillet team, the distance traveled being 2751 miles. The Fogler-Lawson team won the Boston 6-day race.

CYRENAÏCA. See Tripoli.

CYPRUS. An island in the Mediterranean, occupied and administered, since June 4, 1878, by Great Britain, though nominally a part of the Ottoman Empire. Area, 3584 sq. miles; population (1911), 274,108. About 25.9 per cent. are Mohammedans; the rest, members of the native Cypriote Church, an autocephalous branch of the Orthodox Greek. Capital, Nicosia, with 16,052 inhabitants. Total number of elementary schools, 595 (191 Mohammedan, 404 Christian); with 31,780 scholars (5926 Mohammedan, 25,854 Christian).

The ancient copper mines for which Cyprus was renowned have been long abandoned, and the cultivation of the soil has come to be the main occupation of the people. The government has introduced modern labor-saving machinery, encouraged the planting of fruit trees, and developed an irrigation system to overcome the deficiency of moisture. A vigorous campaign against the destructive locust has greatly reduced that enemy. Improved methods have been adopted in the manufacture of wine and spirits, which are an important export. Other products are cereals, carobs, cotton, linseed, aniseed, silk, cheese, wool, fruits, and vegetables. Grazing is practiced. The coasts are fished for sponges; other fishing has fallen off. Total imports, exclusive of specie, in 1911, amounted to £547,772; total exports, £626,557 (carobs, £182,883; livestock, £94,932; barley, £56,415; wine, £53,685; raisins, £29,636; silk cocoons, £27,587; raw cotton, £22,593; vegetables, £14,106; citrous fruits, £10,179); in 1910, £493,475 and £511,841. Tonnage entered and cleared, 758,502 (113,873 British). Revenue (1911-12), £319,572 (£286,848 in 1910); expenditure, £235,256 (£251,520); grant-in-aid, £50,000 (£50,000); sum payable to Turkey (applied to interest on loan), £48,122 (£43,518).

There were reported, according to the census of 1911, 101 lepers in the island (65 males, 36 females). On the leper farm, March 31, 1912, 99 patients were reported.

The railway (government) from Famagusta to Nicosia has an extension to Morphou.

A high commissioner (1913, Major Sir H. J. Goold-Adams) administers the island, exercising the powers of a colonial governor.

History. The success which attended Greek arms during the Balkan War of 1912-13 (see Turkey and the Balkan Peoples) naturally aroused keen interest among the Cypriotes and elicited from the Greek inhabitants frequent demands for the annexation of their island to the Hellenic kingdom. At the opening of the Legislative Council on March 18, the high commissioner stated that the total surplus available from the preceding year was £70,000, and urged the vigorous prosecution of needful public improvements. The Greek members of the Council at once entered a protest against the British government and withdrew from taking any part in the consideration of the estimates for the current year. Again on June 20 the Greek members addressed a memorial to the secretary of state praying for the union of Cyprus with Greece. The British government promptly disavowed any intention of alienating the island. The refractory attitude of the Greeks made legislation very difficult, and about the only bill which had passed the Council at the time of its final adjournment in June was one intended to bring about, by means of heavy taxes, the gradual exclusion of goats from the island on account of the predatory habits of those animals in the forests and on farming lands. A large number of Cypriotes enlisted in the Greek army and served in the wars against Turkey and Bulgaria.

DAHOMEY. A colony of French West Africa (q.v. for area, population, etc.). The one-time savage and cruel Djedjis (or Fons) and Baribas have been greatly modified under the French régime; the Nagos remain untouched, an unresponsive and treacherous people. The majority of the population manifest a real aptitude for agricultural pursuits. Plantations of oil and cacao palms have proved profitable; corn, cotton, and cacao are cultivated; and forest products are gathered. The imports for 1911 were valued at 19,673,539 francs and the exports at 21,958,301 (palm kernels 12,577,199 francs, palm oil 8,088,401, dried fish, 441,338, live animals 186,401, cotton 165,430, copra 105,081). A railway (748 kilometers), which will when completed connect Cotonou with the Niger at a point near Karimana, is in operation from Cotonou to Saré (261 kms.), A branch runs from Cotonou to Segboroué (58 kms.). The lieutenant-governor (1913), C. Noufflard) resides at Porto-Novo, a town of 40,000 inhabitants; Abomey has 10,732; Ouidah, 13,000; Cotonou, 1954.

DAIRYING. Several reports of extensive studies in milk production were reported from different localities during the year 1913. The cost price varied generally from three to six cents per quart, according to location. The average price paid farmers for market milk sent to the leading cities ranged from 2.904c., the price paid in St. Paul, Minnesota, to 4.437c. per quart paid at Washington, D. C. These figures were higher than prices paid several years ago, but the cost of production increased faster than prices received for milk. Stringent regulations of public health officials, the increase in the price of feed and the scarcity of farm help added materially to the cost of production each year. The price of milk to the consumer advanced less rapidly in the past twenty years than the price of eggs, steak, and bacon, so that compared with these products milk remained an economical food.

A report of a "cow census," originally begun as a private enterprise by ex-Governor Hoard of Wisconsin and compiled by the dairy division of the U. S. Department of Agriculture, contains data collected from thirteen of the principal dairy States. The record of 2163 herds containing 28,447 cows, showed that cows of a good dairy type returned to their owners an average of $17.38 per cow above the cost of feed, as compared with $2.03 returned by the cows of a poor dairy type. Cows kept in comfortable stables, fed silage, and whose owners read good dairy literature were found to be in the most profitable herds. Many dairymen who kept poor cows and were not informed on modern methods actually lost money in the dairy business.

Now that the great value of the cow-testing associations in improving dairy production has been demonstrated, the number in the United States nearly doubled during the year 1913. Over 2500 herds were tested by this coöperative method, besides many others included in associations organized by the agricultural colleges where testing is done without charge.

Several milk and butter records were made during the year, including those by Eminent's Bess, a Jersey, and K. P. Pontiac Lass, a Holstein cow. The latter made 47.18 pounds of butter in seven days, and the former produced in one year, 18,782 pounds of milk containing 962 pounds of fat, equivalent to 1132 pounds of butter. The food cost for this remarkable yield was $116.54.

Dr. Carl G. P. DeLaval, the Swedish engineer who invented the continuous centrifugal cream separator, which did so much to revolutionize the dairy industry, died at Stockholm in February at the age of sixty-seven years. He has been pronounced by some as the greatest benefactor of dairy husbandry in its history.

Certified Milk. The demand for certified milk, though increasing, was not as great as might be expected, partly because many consumers were not willing to pay the additional price, which was about 6.4 cents more per quart than for ordinary market milk. After twenty years only about one-half of one per cent. of the total market milk supply of the country was certified. There were about sixty-five medical milk commissions which gave certificates to producers who supplied milk of the required standards of purity. These standards varied with each commission, but steps were taken to have them uniform as far as was compatible with local conditions. In a few cities milk was sold as "certified" by dairymen who had no connection with the medical milk commissions.

Butter and Butter Substitutes. G. K. Holmes of the Bureau of Statistics, Department of Agriculture, reported an extensive statistical study of storage butter in which he found that butter was kept in storage on the average about 4.43 months at a cost of .571 cents per pound per month. The amount stored each year is about 157,000,000 pounds, and the effect of storing is to equalize the price both for the consumer and the producer. In a special report to the mayor of Philadelphia on the cost of marketing butter, it is stated that the price paid the farmer was 18.5 cents for a low grade, and 23 cents for high grade butter. The retailer's price for the same grades ranged from 32-38 cents for the low grades and 40-45 cents for the high grade, so that the cost of marketing was equal to the cost of production.

For the first time in 1913 foreign butter came into competition with the home product. Shipments of butter arrived in the United States from Australia, New Zealand, Argentina, and Siberia, but most of this foreign butter was of a low grade, particularly that from Siberia.

Improvement in methods of manufacture of oleomargarine during the last two years mdae it a serious competitor of the poorer grades of butter, particularly in Europe, Australia, and the United States. Formerly it was made mainly from animal fats, but by taking advantage of recent discoveries in chemistry, a large number of vegetable fats were used. The flavor was also improved by the use of bacteria starters such as were used in butter-making. The process of hardening oils by means of hydrogen, which had been successful in soap-making, was also adopted for hardening margarine, and at the same time the undesirable odors and colors were removed.

Cocose is the name applied to a French product resembling butter, consisting largely of copra. It is gaining in popularity among Mohammedans and Hindus, as it contains no hog fat nor beef tallow, and can be eaten without interfering with their religious views.

Legislation. The most important legislation concerning dairy products was the Underwood tariff bill, which placed milk, cream, and preserved or condensed milk on the free list, and reduced the tariff on butter and butter substitutes from 6c. to 3c. per pound, and on cheese from 32 per cent. to 20 per cent. *ad valorem.*

Minnesota led other States in dairy legislation, passing laws defining the acid limit of cream, prohibiting the operation of creameries that do not adopt clean methods, prohibiting the use of neutralizer or preservative such as viscogen, lime, and borax in milk products, and preventing unjust discrimination in the sale of milk.

Dairying in Foreign Countries. The output of milk, butter, and cheese in Canada was on the increase, but considerable butter was imported from New Zealand in the winter season. In Argentina each year more attention was paid to making butter for export to England, and in 1913 some was sent to the United States. Although not of the highest grade, the quality improved considerably within the past two years. New standards were adopted early in the year for the export of butter and cream from Australia in order to ensure a good quality of product to purchasers in foreign countries. New Zealand and all the Australian States sent less butter to England than in the previous year. There were unfavorable climatic conditions in Australia, and in New Zealand more attention was given to cheese-making. Canada, which sent 15,000 tons of butter to Great Britain in 1906, was sending practically none, as increasing prosperity had led to greater home consumption and more was sent to the United States than hitherto. The deficiency of home production of cheese in Great Britain was supplied by increased imports from New Zealand. Butter-making made rapid strides in South Africa during the past few years; upwards of fifty creameries were in operation, with a total annual output of about 8,000,000 pounds in addition to about three million pounds made on farms.

The campaign for pure milk in Germany was taken up by the milk-dealers' association, which petitioned for a uniform imperial law relative to the sale of milk, and asked that proper methods of handling and caring for milk be taught in the public schools. It also tried to enlist the coöperation of the railroads in bringing about more sanitary conditions in the transportation of milk.

Although there were about 2,600,000 milch cows and buffaloes, and over 3,000,000 ewes in Hungary, milk production was not profitable to the small farmer, but the recent formation of cow-testing associations and coöperation in other ways, gave evidence that the situation would be much improved when the movement had covered a wider territory.

Bibliography. Among the more important publications which appeared during the year are the following: F. Bordas, and F. Touplain, *Laiterie, Lait, Créme, Fromages* (Paris); C. H. Felkes, and R. H. Shaw, *The Influence of Lactation on the Composition and Properties of Milk; Bureau of Animal Industry Bulletin* 155 (Washington, D. C.); W. Ernst, *Grundriss der Milchygien für Tierartze* (Stuttgart); O. F. Hunziker, H. C. Mills, and G. Spitzer, *Moisture Control of Butter* (Indiana Experimental Station, Bulletins 159 and 160, Lafayette, Ind.); O. Jensen, *Die Bakteriologie in der Milchwirtschaft* (Jena); C. Larsen, and W. White, *Dairy Technology* (New York); H. W. Overbosch, *Statistisch Studien über Rinderbeurteilung nach den Körpermassen* (Gouda, Holland); L. A. Rogers, W. N. Berg, C. R. Potteiger and B. J. Davis, *Factors Influencing the Change in Flavor in Storage Butter* (Bureau of Animal Industry, Bulletin 162, Washington, D. C.); J. L. Sammis and A. T. Bruhn, *The Manufacture of Cheese of the Cheddar Type from Pasteurized Milk* (Bureau of Animal Industry, Bulletin 165, Washington, D. C.); H. H. Wing, *Milk and Its Products* (new edition, New York).

DAMS. There were under construction during the year 1913 a number of notable dams in connection with various water supply and power projects. Great progress was made on the Kensico dam of the Catskill Aqueduct system, which was probably the most massive construction of the kind ever attempted. It is of Cyclopean masonry and was to rise to a height of 306.8 feet above the bottom of its foundation, the lowest part of which was founded in the excavation of a pre-glacial gorge, in which was involved the removal of disintegrated and unsound rock. The new dam, which involves, in round numbers, one million cubic yards of masonry, was more than one-third completed at the end of the year, as on December 20 more than 316,000 cubic yards of Cyclopean masonry and concrete blocks had been set in place. The construction was unique in that the traveling derricks running on service tracks used for setting the huge blocks of masonry and concrete, were carried on elevated tracks set on concrete piers, which were left embedded in the dam as the masonry grew in height, and new levers, each 20 feet or more in height, were set as the work progressed. The construction of this dam was notable in that between August 25 and September 24, in 25 working days, there were placed 49,850 cubic yards of Cyclopean masonry, 2630 cubic yards of concrete blocks, previously made, and 760 cubic yards of mass concrete, or a total of 53,240 cubic yards, on an average of 2130 cubic yards per day.

Spaulding Dam. What promised to be eventually the highest dam in the world was being constructed on the South Fork of the Yuba River, one and a half miles from Smart, a station in California, on the Southern Pacific Railroad. This dam impounds a flow from a drainage basin of 120 square miles, with an average annual rainfall of 60 inches and a runoff of 80 per cent. It is a structure of massive Cyclopean masonry and was being constructed across a canyon 2200 feet down stream from an earlier dam which formed a reservoir known as Lake Spaulding. At the site of the new dam the geologic formation was granite and diabase, and the design was in the form of an arch across the canyon. During 1913 it was being constructed to a height of 260 feet above the bed of the river, and it was so designed that later it could be raised to a height of 305 feet, or 325 feet above the lowest part of the foundation. At this height the reservoir would contain 30 billion gallons of water.

Hales Bar Dam on the Tennessee River. An important project was in course of construction during the year at Hales Bar, Tennessee, a short distance below Chattanooga on the Tennessee River. There was under construction a dam to impound the water so that the mountain section of the river might be improved for navigation and, at the same time, that hydraulic power should be furnished. Several modifications in the project, including the placing of the dam as well as the dam itself, were required from the time of the first conception of the idea and the necessary authorization from Congress, as the Tennessee River is a navigable stream under Federal control.

The work consisted in the construction of a dam 1200 feet in length and 65 feet in maximum height, with a bottom thickness of 68 feet, and a width on the crest of 11 feet 6 inches. The up-stream face is vertical and the down-stream face is a slope of four on three horizontal. The concrete is carried to an extreme depth of 83 feet below crest level. The lock, which is on the west bank, was excavated in solid rock, and is 60 feet in width by 312 feet in length inside, with a lift of from 20 to 40 feet, depending on the stage of the river. The gates are 30 feet wide, 59 feet high at the lower end, and 37 feet high at the upper end. The river wall of the lock in 630 feet in length and has a height of 60 feet.

On the east side, at the opposite end of the dam, was constructed the power and transformer house, the former being planned for seven bays each to contain two power units of 3400 kilowatts capacity. Each unit consists of three wheels on a vertical shaft 94 feet high, on top of which is the revolving element of an alternating current generator. The dam foundation was completed in August and the last concrete for this part of the work was placed later in the year. Extraordinary difficulties were encountered, and caisson construction was required for the foundation. See TRANSMISSION OF ELECTRIC POWER.

EARTH DAM. During the year a notable earth-fill dam, without masonry core, 2080 feet in length on the crest, and having a maximum height of 106 feet, was built at Peck's mill, in the town of Somerset, Vt., as one of the elements in the power development on the Deerfield River, for the New England Power Company. This dam was constructed largely by depositing material from trestles and a concrete spill-way was built with a spill-way channel through rock on the west side of the dam.

ROLLING DAMS. The rolling dam, which had been extensively used in European engineering practice, was attracting considerable attention in the United States, and the United States Reclamation Service installed one on the Boise (Idaho) project, while during the year it let a contract for the erection of another on the Green Valley project in Colorado. The most important step in this direction, however, was the decision of the Washington Water Power Company to employ rolling dams for the Long Lake development near Spokane. In this case three rollers, 65 feet in length, with a circular section 13 feet in diameter, were designed, and one of these rollers is provided with sheath extensions to raise the water level to a height of 19 feet. A rolling dam is a water-tight steel cylinder rolling on inclined rails supported in recesses in masonry piers or abutments. When it is desired to impound the water the cylinder is lowered and serves as a dam, while it can be raised by means of a chain, or wire rope wound around one end so that it can be suspended out of reach of floating matter. The chief advantages of a rolling dam are the possibility of building discharge openings of large span and depth, and the absence of any obstruction or ice when the dam is open. They have small leakage, that for the Long Lake development, already referred to, being guaranteed not to exceed two second feet for the three rollers 65 feet long and 19 feet high.

The Boise Rolling Dam, completed in 1913, was constructed to close a logway 30 feet long and situated below the crest of the remainder of the dam. In cross section it was the arc of a circle having a radius of six feet and a chord length of eight feet. A gear wheel at either end works in racks laid at an angle of 21½ degrees with the vertical, and the dam can be controlled either by electric motor, or by gear.

There has been completed in Germany to provide for the Ruhr Valley district at the mouth of the Heve River, a confluent of the Möhne, a large dam to give storage capacity during the extreme low water periods of the Ruhr River. This dam is 131 feet in maximum height, and its cross section is 121 feet wide at the base, with a crest roadway 20 feet in width. It is slightly arched up stream, and has a total length of 2100 feet. It is made of stone laid in cement with a water side faced with two coatings of lime-cement-trass waterproofing mixture with a slight asphalt-emulsion addition, and this, in turn, protected by brick facing. The reservoir thus formed has a capacity of 46,000 million cubic feet, and the total cost of the work was given as about $5,000,000. The new dam can store about 53 per cent. of the annual run-off from a drainage area of about 160 square miles. There is also a power plant just below the dam containing four turbo-generator units of 1600 horse power each.

DANCES. See TANGO.

DANIELS, JOSEPHUS. An American editor and public official. Secretary of the Navy in the cabinet of President Wilson. He was born in Washington, N. C., in 1862, and received an academic education. At the age of eighteen he became editor of the Wilson (N. C.) *Advance*. He was admitted to the bar in 1885, but did not practice. He became editor of the Raleigh (N. C.) *State Chronicle* in 1885. From 1887 to 1893 he was State printer, and from 1893 to 1895 he was chief clerk in the Department of the Interior. In 1894 he consolidated the *State Chronicle* and the *North Carolinian* with the *News and Observer* of Raleigh, and became editor of the consolidated paper. He was a member of the Democratic national executive committee from North Carolina for many years, and a member of the Democratic national committee which carried on the campaign for the nomination and election of President Wilson. Mr. Daniels's career as an editor has been marked by vigor, independence, and fearlessness in attacking corruption and fraud.

DANISH WEST INDIES. A Danish colony composed of three West Indian islands: St. Croix, 84 square miles, 15,467 inhabitants; St. Thomas, 33 and 10,678; St. John, 21 and 941. The inhabitants are chiefly negroes and the main industry is the cultivation of sugar-cane. Charlotte Amalie (on St. Thomas) is the capital. The governor in 1913 was L. C. Helweg-Larsen.

DARSONVILLITE. See CHEMISTRY, INDUSTRIAL, under *Explosives*.

DARTMOUTH COLLEGE. An institution of higher learning, at Hanover, N. H., founded in 1769. The number of students enrolled in the several departments in 1913-14, was 13,031, while the faculty numbered 116. Among the noteworthy changes in the faculty during the year were the resignation of James Milton O'Neill, assistant professor of oratory, and the retirement of Charles Franklin Emerson, as dean of the academic faculty. R. L. Theller was appointed to succeed Professor O'Neill, and Craven Laycock to succeed Mr. Emerson. Homer Eaton Keyes resigned as professor of fine arts to become business director of the college. George Breed Zug was appointed to succeed him. Henry Wood Shelton was appointed assistant professor of business organization in the Tuck School of Administration and Finance. Noteworthy benefactions during the year included the gift of $75,000 by David D. Stuart, to found the Levi M. Stuart fund, and $100,000 by Wallace F. Robinson for Robinson Hall. The productive funds of the college amount to about $3,750,000, and the total income to about $375,000. The library contains about 125,000 volumes. The president is Ernest Fox Nicholls, LL. D.

DAVIS, Jeff. United States senator (Democrat) from Arkansas, died January 2, 1913. He was born in Little River County, Ark., in 1862; educated in the public schools; and studied law at Vanderbilt University, taking his degree in 1884. In the same year he was admitted to the bar. He was prosecuting attorney of the 5th judicial district of Arkansas in 1892, and in 1898 was elected attorney-general of the State. He was governor for three terms, from 1900-07, and the only governor elected three times. In the last year of this office he was elected United States senator for the term ending 1913. In the senatorial primaries held in 1912 he was renominated, but died before his election could be ratified by the legislature. (See Arkansas.) Senator Davis was one of the most aggressive politicians in public life. During his career in the State politics his campaigns for governor and senator were marked by extreme bitterness. He made himself particularly the champion of the "common people" as against capitalists, and his attacks against the "money power" made him notorious throughout the country. He continued this attitude after his elecion as senator, and nearly all of his addresses before the Senate were devoted to attacks on financial interests. In spite of his bitter and at times intemperate utterances, his personality is said to have made him one of the most popular members of the Senate.

DEATH RATE. See Vital Statistics.

DE HAVEN, John Jefferson. An American jurist, died January 26, 1913. He was born in St. Joseph, Mo., in 1845; four years later removed with his parents to California; and was admitted to the bar in 1866. From 1867-69 he was district attorney at Humboldt County, and in the latter year was elected member of the State House of Representatives. From 1871-74 he was a member of the State Senate; city attorney of Eureka from 1878-80; in 1882 defeated Republican candidate for Congress; judge of the Superior Court of the State from 1884 to 1889. In the latter year he was elected to the Fifty-first Congress, but resigned on October 1, 1890, to be appointed associate justice of the Supreme Court of California in the following year. In 1897 he became United States district judge for the northern district in California.

DELAWARE. Population. The population of the State in 1910 was 202,322. According to the estimate of the Bureau of the Census, made in 1913, the population in that year was 208,036.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	197,000	6,206,000	$3,662,000
	1912	195,000	6,630,000	3,381,000
Wheat	1913	113,000	1,638,000	1,441,000
	1912	111,000	1,942,000	1,864,000
Oats	1913	4,000	122,000	62,000
	1912	4,000	122,000	55,000
Rye	1913	1,000	14,000	11,000
	1912	1,000	14,000	11,000
Potatoes	1913	11,000	957,000	718,000
	1912	11,000	1,100,000	770,000
Hay	1913	72,000	a 94,000	1,476,000
	1912	72,000	96,000	1,440,000

a Tons.

Mineral Production. The mineral production of the State is limited to its quarries, to its clay, sand and gravel pits, and to mineral waters. The total mineral output in 1912 was valued at $425,360, of which $193,074 was represented by the output of the stone quartz, and $162,216 by the coal products. The total mineral production in 1911 was $491,607.

Finance. The total receipts from all sources for the fiscal year 1913 amounted to $676,953. The disbursements for the same period were $707,158. There was a balance at the beginning of the fiscal year of $92,347, and at the end of the fiscal year of $61,749. The chief sources of revenue are licenses and fees from clerks of the peace, insurance and banking departments, railroads, State tax corporations, franchise taxes from corporations, and collateral inheritance tax. The chief expenditures are for education, charitable and correctional institutions, public highways, executive and judicial departments, public health, agriculture, legislature, and public defense. The bonded debt of the State at the end of the fiscal year was $826,785.

Politics and Government. The legislature met in 1913 and passed a number of measures which are noted in the paragraph *Legislation* below. There was no election for State officers. The term of governor expires in January, 1917. The next State election will be held on November 3, 1914. The attempt to elect a United States senator to succeed Harry A. Richardson, whose term expired March 4, 1913, resulted in a dead-lock in the legislature. The House of Representatives on March 19 refused to ratify a resolution favoring the direct election of senators. A woman suffrage bill was adopted in the Senate on March 14. The whipping of six prisoners at the whipping-post in the New Castle County Work House on November 8, resulted in the introduction of a resolution in the national House of Representatives, to prevent whipping in prisons. Delaware is the only State in which the whipping of convicts is permitted. No action was taken on this resolution.

Charities and Corrections. The institutions wholly or partly supported by State appropriations are as follows: A State hospital for the insane at Farnhurst; a new Castle County hospital at Farnhurst; a county work-house at Greenbank; the Ferris Industrial School at Marshallton; the Delaware Industrial School for Girls at Wilmington; the Delaware Orphans' Home for Colored Children, State Road; private institutions and a home for aged women at Wilmington; and a home for friendless children, Wilmington. In addition to this there are hospitals and other private institutions which do not receive State support.

EDUCATION. The total school population of the State between the ages of five and seventeen is about 50,000. In 1911 there were enrolled in the public schools 35,950. The average daily attendance is about 22,559. The teachers employed numbered 993, of whom 857 were women, and 136 were men. Expenditures for schools are approximately $600,000 a year.

COMMUNICATIONS. The railroad mileage of the State in 1913 was about 335.97. There was practically no new construction during the year.

LEGISLATION. The legislature met in 1913 and enacted several important measures. These include an act to regulate the employment of child labor and creating a child labor commission, an act regulating the hours of labor for females, making ten hours per day or fifty-five hours per week the maximum in certain employments, and an act providing for the secrecy and purity of the ballot. This measure prescribes elaborate rules for the conduct of polling places, the form of ballot to be used, etc.

STATE GOVERNMENT. Governor, Charles R. Miller; Secretary of State, Thomas W. Miller; Lieutenant-Governor, Colen Fegruson; Attorney-General, Josiah O. Wolcott; Insurance Commissioner, William R. McCabe; State Treasurer, Charles A. Hastings; State Auditor of Accounts, William P. Prettyman.

JUDICIARY. Supreme Court: Chancellor, Charles M. Curtis, Rep.; Chief Justice, James Pennewill, Rep.; Associate Justices, Victor B. Woolley, Dem.; Herbert L. Rice, Rep.; William H. Boyce, Dem.; Clerk, Wilbur D. Wilds, Dem.

STATE LEGISLATURE, 1913. Republicans: Senate, 9; House, 14; joint ballot, 23. Democrats: Senate, 8; House 21; joint ballot, 29.

The State representatives in Congress will be found in the section *Congress*, article UNITED STATES.

DEMING, CLARENCE. An American editor and writer, died May 8, 1913. He was born in Litchfield, Conn., in 1848, and graduated from Yale College in 1872. In the same year he became associate editor of the Troy *Whig*, in the year following taking up post-graduate studies at Yale. In 1874-75 he was the editor of the New Haven *Palladium*, afterwards serving as editor and editorial writer for the New York *Evening Post*. He remained with this paper until 1884, when he became editor of the New Haven *News*. After several years with this journal he became associate editor of the *Railway Age Gazette*, and also did general writing for newspapers and magazines. He was the author of *By-ways in Nature and Life*.

DENMARK. A constitutional European monarchy, situated north of the German Empire, between the North and the Baltic Seas. Capital, Copenhagen.

AREA AND POPULATION. The table below gives the insular and mainland divisions, with area in square kilometers, and population for comparative census years:

	Sq. km.	Pop. 1911	Pop. 1901
Islands:			
Seeland	7,498.34	1,096,897	960,053
Bornholm	587.53	42,885	40,889
Lolland-Falster	1,791.23	115,658	105,021
Fyn	3,474.16	303,179	279,785
Jutland:			
Southeast J.	7,320.70	482,264	430,549
Southwest J.	10,733.20	364,620	313,764
North J.	7,563.54	351,578	319,479
Total Denm'k proper	38,968.70*	2,757,076	2,449,540
Faroe Islands	1,398.90	18,000	15,230
Total	40,367.60†	2,775,076	2,464,770

* 15,046 sq. miles. † 15,586 sq. miles.

The average density per 100 square kilometers was, for Denmark proper, 7075; for the Faroes, 1287. The greatest density was in Seeland—14,629; the least, outside of the Faroes, in southwest Jutland—3397. The population of Denmark proper in 1801 was 929,001 (of the Faroes, 5265); as estimated July 1, 1912, 2,800,000. Number of marriages in 1911, 19,879; living births, 73,938; still-births, 1751; deaths, 37,232; foreign immigration, 8303—6809 to the United States, 744 to Canada. Of the total population in 1911, there were engaged in agricultural persuits 1,003,803 persons; of whom 402,811 men and 110,577 women were active, 145,888 and 344,527 dependent (including 1033 men and 47,110 women in household service); of the 1,003,803 persons, 575,891 were owners or managers, 19,179 overseers, etc., 408,733 laborers. Industrial pursuits occupied 752,203 (276,259 owners or managers, 32,368 salaried employes, 443,576 laborers; professions, 141,909; commerce and transportation, 458,030. The population of some of the principal cities follows: Copenhagen, 462,161 (with suburbs, 559,398); Frederiksberg, 97,237; Aarhuus, 61,755; Odense, 42,137; Aalborg, 33,449.

AGRICULTURE. The total cropped area in 1907 was 3,896,870 hectares, divided as follows: 1,122,761 hectares under cereals, 308,362 under roots, 27,247 under industrial plants, 1,229,585 under grasses (including meadows, pastures, and forage plants), 230,413 fallow, 978,502 other (including gardens, parks, etc.). The area under important cereals and the yield is given for two years in the table below, with the yield per hectare in 1912:

	Hectares		Quintals		Qs.
	1911	1912	1911	1912	ha.
Wheat	40,512	40,512	1,216,157	983,875	24.3
Rye	276,009	276,009	5,007,279	4,799,236	17.4
Barley	233,714	233,714	5,013,129	5,439,031	23.3
Oats	402,939	402,939	7,302,941	7,520,647	18.7

The livestock estimate of July, 1910, returns 535,018 horses, 2,253,982 cattle, 726,829 sheep, 40,257 goats, 1,467,822 swine.

Dairying is an important industry. The average annual production of milk per cow is an indication of scientific development—2570 kilos in 1911, compared with 2161 in 1899. The average amount of milk required to make a kilo of butter is 25.4 kilos.

The fisheries products were valued for the year 1911 at 15,230,200 kroner, of which 4,661,700 kr. were for plaice, 4,165,800 for eels, 2,581,800 for herrings, 1,913,400 for cod.

COMMERCE. General and special trade is shown in the following table, values in kroner:

	Imports		Exports	
	Gen.	Spec.	Gen.	Spec.
1909..	725,037,000	566,782,000	608,081,000	448,822,000
1910..	634,407,000	577,166,000	548,074,000	485,374,000
1911..	705,500,000	623,314,000	626,761,000	536,647,000

The following table gives the principal articles of special trade in 1911:

Imps.	1000 kr.	Exps.	1000 kr.
Cereals	92,698	Butter	192,788
Oilcake	56,282	Meats	137,222
Coal	45,276	Animals	61,919
Iron mfrs.	35,419	Eggs	29,366
Wood	28,869	Skins	12,709
Fibre mfrs.	20,305	Barley	10,276
Woolen mfrs.	19,237	Fish	7,831
Coffee	17,880	Ships	5,372
Skins	11,981	Iron mfrs.	3,647

The quantity of butter exported in 1911 was 89,577,100 kilos (88,475,200 in 1910); the number of cattle 153,512 (140,825), and of horses 28,494 (26,106); quantity of dressed pork 114,396,800 kilos (96,778,200), beef and veal 12,558,300 (16,501,600), mutton and lamb 157,700 (215,300), other slaughter-house products, 19,681,000 (17,757,400); of eggs, 21,513,200 score (20,367,300); of milk and cream, 30,453,500 kilos (23,731,100); of fresh fish, 20,579,100 (16,812,400); of barley, 71,861,600 (50,981,100). The principal countries of origin and destination follow (1911 general trade), values in thousands of kroner:

	Imps.	Exps.		Imps.	Exps.
Germany	265,842	160,008	France	17,242	2,873
U. K.	115,375	358,470	Netherl'ds	17,189	3,622
Sweden	67,254	30,878	Belgium	9,992	2,826
U. S.	65,525	9,082	Norway	7,820	16,453
Russia	52,463	15,557	Iceland	5,693	4,901

In the 1911 trade 13,382 sailing vessels, of 587,289 tons, and 22,491 steamers, of 3,428,515 tons, entered (coasting, 20,289, of 277,320 tons, and 77,823, of 1,599,589); cleared, 13,444 sailing, of 230,698 tons, and 22,794 steamers, of 1,282,934 (coasting, 20,284, of 267,785 tons, and 77,717, of 1,563,436). Merchant marine, exclusive of vessels of four tons and under, January 1, 1912: 2147 sailing, of 94,166 tons; 640 steamers, of 411,595; 775 motor boats, of 8220.

Communications. Of the 3691.3 kilometers of railway line December 31, 1911, 1922.8 km. were state-owned and 1768.5 were owned by private companies. From April 1, 1911, to March 31, 1912, receipts on state lines were 49,106,740 kroner, on private lines 10,193,601; the expenditure, 42,589,727 and 7,060,844. Accidents on state lines during the year, 2 killed and one injured out of 23,211,788 passengers carried over 813,877,960 kilometers; 11 employes killed and 24 injured; 18 others killed and 6 injured. Late in the year there was discussion both in Denmark and Germany as regards a proposed connection between the cities of Hamburg and Copenhagen *via* the island of Fehrmarn. Such a proposed line would supplant the three main routes in use, namely (1), *via* Warnemunde and Gildser, (2) *via* Kiel and Korsör, and (3) *via* Frederica. The new route *via* Lübeck was to form almost a straight line and reduce the time of the journey a little over five hours, but it would not eliminate the train ferries required on the other lines. It was not decided whether the project would be adopted or not, and there was great opposition on the part of the territories affected through which the older routes passed, but it was evident that the result would be a decrease in the time of travel between Germany and Denmark. In 1913 the rolling stock of the various railway lines in Denmark was estimated as follows: 681 locomotives, 470 locomotive tenders, 1628 passenger cars, 465 mail and baggage cars, 9670 freight and livestock cars, 47 wrecking cars, etc. The railway lines owned 70 snow plows and 8 steamships and 23 ferry steamers. State telegraph lines (March 31, 1912), 3646 km.; wires, 12,959; stations, 172 state, 392 railway; 3,526,527 telegrams were dispatched in the year ended March 31, 1912; the receipts amounted to 2,936,557 kroner and the expenses to 2,419,551. The net gain was 517,006 kr., compared with 288,904 kr. in 1910-11, and 37,437 in 1909-10. Telephone wires: 26,161 km. State, 418,477 private. Post offices (1912), 1125; receipts for the year ended March 31, 17,055,817; expenses, 15,661,224. Number of automobiles registered Sept. 1, 1912, 1587 (682 in 1909). Highways (1911), 6781 km.; by-ways (1908), 36,218.

Army. The effective strength of the Danish army consists on a peace basis of 975 officers, 2398 under officers, and 10,720 men which, on a war footing, might be raised to about 90,000 men. Service is compulsory and lasts for 16 years, half of which must be spent in the line and half in reserve. The recruits spend 165 days in the infantry, 200 days in the cavalry, and various terms in the other branches, and technical troops. Only a portion of the annual contingent is taken for such training.

The troops are organized as follows: One regiment of guards, 10 regiments of line troops, 15 regiments of reserve; cavalry, two regiments of the line, two mixed regiments, formed of line and reserve squadrons; field artillery, two regiments of two divisions of four batteries each and two independent divisions. Coast artillery, 12 batteries of the line and six batteries of the reserve; engineers, one regiment with ten companies of the line and two in reserve. There are two main groups of commands, east and west of the great belt respectively. A substantial beginning was made during 1913 with the strengthening of the sea defense at Copenhagen and the construction of new fortresses, the problems of military defense being one that figured in the political discussions of the country for several years previously.

Navy. Besides an old battleship, a cruiser, and some small craft, the fleet, which is maintained for coast defense alone, includes 4 monitors, 3 torpedo gunboats, 14 first-class torpedo boats, 3 submarines. Building, 5 torpedo boats, 2 submarines.

Finance. The unit of value is the krone, par value $0.26799. A comparative financial table follows, amounts in kroner:

	1908-9	1909-10	1910-11	1911-12
Rev..	93,359,181	135,248,843	142,102,605	95,491,250
Exp..	107,996,039	133.179,461	139,161,744	116,894,771

The 1912-13 budget estimated the revenue at 97,838,034 kr. and the expenditure at 101,745,054. The public debt stood, March 31, 1912, at 351,978,008 kr.

Government. The reigning king, Christian X., was born September 26, 1870, succeeded his father May 14, 1912. In 1898 he was married to Alexandrine, duchess of Mecklenburg; and has children: Christian Frederic Michael (March 11, 1899), prince royal; and Knud Christian (July 27, 1900). The legislative body (Rigsdag) consists of an upper (54 members) and a lower (114) house. The king appoints a ministry of eight members responsible to the legislature. The ministry (constituted July 5, 1910) was in the beginning of 1913 composed thus: K. Berntsen, premier and minister for defense; C. W. (Count) von Ahlefeldt-Laurvig, foreign affairs; A. Nielsen, agriculture; J. Appel, worship and instruction; T. Larsen, public works; J. Jensen-Sönderup, interior; N. T. Neergaard, finance; O. H. V. B. Muns, commerce; F. T. von Bülow, justice. As constituted June 21, 1913, the ministry was as follows: C. Zahle, premier and minister of justice; Dr. P. R. Munch, defense; E. J. C. von Scavenius, foreign affairs; Kr. Pedersen, agriculture; S. Keiser-Nielsen, worship and instruction; J. Hassing-Jörgensen, public works, commerce, etc.; Ove Rode, interior; Dr. E. Brandes, finance.

HISTORY. Failing to present a united front on the question of constitutional reform, the government was defeated in the elections to the Folkething on May 20. In the new Folkething the Radicals with 31 members and the Social Democrats with 32 had a majority opposed by 43 of the Left and 7 of the Right; whereas, in the last elections (1910) the Left or government party possessed 57, the Right 13, the Radicals 20, and the Socialists 24. The Berntsen ministry could no longer command a majority and on June 12 the president of the council tendered his resignation. Nine days later, on June 21, a Radical cabinet, drawn chiefly from the staff of the Radical journal, *Politiken*, was formed under the leadership of M. Zahle. In announcing the budget for 1914-15, M. Brandes, the new minister of finance, estimated that there would be a surplus of $1,000,000, notwithstanding the additional expense incurred in the establishment of free employment bureaus. On September 17 a constitutional reform bill similar to the one rejected by the Landsthing in 1912 was introduced in the Folkething and subsequently passed by the overwhelming majority of 101 to 6. The bill, which provided for universal adult suffrage in elections to the Folkething and modified the manner of choosing the Landsthing, was effectually opposed by the members of the upper house, because, if it passed, it would have required them to seek election not from a wealthy minority but at the hands of popular communal and municipal councils. Late in October it was reported that subject to the verdict of the next elections it had been determined to extend to Iceland a greater measure of home rule than was granted by the laws of October 3, 1903.

DENTAL SCHOOLS. See UNIVERSITIES AND COLLEGES.

DE PAUW UNIVERSITY. An institution of higher learning at Greencastle, Ind., founded in 1837. The total enrollment in the College of Liberal Arts in 1913-14 was 665. In the music department there were 198, and in the academic 65. The faculty numbered 55. There was received during the year for gifts and endowment about $175,000. The productive funds amount to $866,534 and the income, including the students' fees, to $41,547. The library contained 41,537 volumes. The president is George Richmond Grose, D. D., who succeeded Frances J. McConnell, LL. D., in 1912.

DERRICK, WILLIAM BENJAMIN. Bishop of the African Methodist Episcopal Church, died April 15, 1913. He was born in Antigua, West Indies, in 1843, removed to the United States when a youth, and enlisted in the Civil War, taking part in the battle between the *Monitor* and the *Merrimac*. He was bishop of the West Indies, South America, and the Islands of the Sea.

DESIGN, INTERNATIONAL ACADEMY OF. See PAINTING.

DESTROYERS. See NAVAL PROGRESS, *Great Britain, United States, Germany, etc.*

DETROIT. See MICHIGAN.

DE WOLF, JOHN. An American landscape architect, died November 23, 1913. Born in Bristol, R. I., in 1850, he studied landscape architecture in Rhode Island, Boston, and New York, and in Europe, and in 1897 was appointed landscape architect of Greater New York. He had previously been general superintendent of parks in Brooklyn. He resigned his position in New York City in 1902, and thereafter practiced as engineer and landscape architect up to 1906. He designed the Villa Maria of Lake Como. For over twenty-five years he contributed articles to leading publications on landscape architecture and kindred arts.

DIABETES. See HEDIOSIT.

DIAMONDS. The first production of diamonds as a result of regular mining operations within the United States was made last year by two companies who have been engaged in the development of diamondiferous pipes near Little Rock, Ark. About 5000 loads of the disintegrated rock were washed by one of the companies, resulting in the extraction of between 700 and 800 stones, the quality and size of which were not reported. The occurrences, as described in an earlier volume of the YEAR BOOK, are quite similar to the South African deposits from which most of the present supply of diamonds is obtained.

DIAZ, FELIX. A Mexican soldier, son of General Felix Diaz, a brother of Porfirio Diaz, former president of Mexico, and the leader of the revolution against President Madero. Diaz's father was killed in 1871, during the revolution which the Diaz faction led against President Juarez. Felix Diaz was educated at the military academy in Mexico City, and held many positions of trust and responsibility under his uncle. For six years he was chief of police of Mexico. He supported his uncle throughout the revolution headed by Diaz, which resulted in the exile of the former. But on the triumph of Madero he accepted the situation with apparent grace, and remained a commissioned officer in the federal army. In August, 1912, he resigned from the army. He had previously been approached by influential persons who were dissatisfied with the rule of Madero, and these persons are said to have told him that Madero had become a greater tyrant than the old dictator; that he had broken his promises; and that the great land barons remained as powerful as before. He was assured also of the support of most of the army, if he would lead in the attempt to overthrow him. Felix Diaz soon decided in favor of such a proposal. In October he proclaimed himself commander-in-chief of the rebel forces in Mexico and took possession of Santa Cruz, the most important port of the country. Every federal soldier in the garrison, and in the police and the fire departments, and many citizens flocked to his banner. He began the uprising with 2000 men under his own command. Gaining control of the arsenal he had an abundant supply of arms and ammunition, and his success seemed certain. The Madero government, however, had laid a trap for his undoing. Madero's spies knew of the plans of Colonel Diaz and on the morning of October 24, 1912, the federal troops attacked Vera Cruz and captured it. Colonel Diaz was taken and tried by a court-martial for treason. He was found guilty and was sentenced to death, but when the news reached the City of Mexico there was dissention in the cabinet as to what course the president should take. The majority of the members favored the death sentence. President Madero's uncle, Ernesto Madero, the finance minister, and his brother, Gustavo Madero, insisted that Diaz should be shot. The president, however, without deciding whether or not to spare Colonel Diaz's life, sent him to prison. He was placed in the military prison at Vera Cruz, but was later taken to the Santiago penitentiary at Mexico City, from which he was released at the outbreak of the revolution. (See MEXICO, *History*.)

DIESEL GAS ENGINE LOCOMOTIVE. See INTERNAL COMBUSTION ENGINES.

DIETETICS. See FOOD AND NUTRITION.

DIKE, SAMUEL WARREN. An American clergyman and publicist, died December 3, 1913. He was born at Thompson, Conn., in 1839; graduated from Williams College in 1863; and studied theology at the Hartford Theological Seminary and at Andover Theological Seminary. In 1869 he was ordained to the Congregational ministry, and held several pastorates in Vermont until 1882. He wrote for many periodicals on marriage, divorce, the family, and other sociological and economic subjects. His writing led to the organization of the Divorce Reform League in 1881. This later became the National League for the Protection of the Family, for which he was corresponding secretary until the time of his death.

DIPHTHERIA. The method of vaccination proposed by von Behring at the International Medical Congress held at Wiesbaden in April, 1913, was looked upon as the most important contribution of the year. The new remedy was stated to be a mixture of a powerful diphtheria toxin with antitoxin, combined in such proportions that the resultant serum shows only a slight, if any, surplus of the toxin. Von Behring presented evidence to show the necessity of a more efficient method of prophylaxis than diphtheria antitoxin, the latter being so quickly eliminated, the immunity conferred by it being of such short duration, and repeated injections occasionally proving dangerous on account of the liability to produce a series of unpleasant symptoms, included under the general term anaphylaxis. Antitoxin, moreover, confers only what is called passive immunity, whereas that conferred by a vaccine is an active immunity and lasts for several weeks.

Various methods of ridding chronic diphtheria-carriers of their germs (the Klebs-Loeffler bacilli) were tried during 1913, and the interesting observation was made by Beyer, that diphtheria bacilli occurred in the urine of every one of nineteen cases in children, at periods from four to fourteen weeks after their apparent recovery. In carriers the most usual sites are the tonsillar crypts and the small recesses of the nostrils, in addition to the fissues in adenoid vegetations, when these exist. The most promising method, as reported by several investigators, was spraying the throat and nose with a suspension of *staphylococcus pyogenes.* Living germs are used, and while no serious unfavorable results have been reported, in case of a mistaken diagnosis a staphylococcus sore throat may be set up. Alden, of the Iowa State board of health, reported sixteen cases in which a staphylococcus spray was used, with by-effects ranging from a slight edema of the face to sore throat and fever, increased nasal discharge, and headache. Testimony as to the actual danger of the diphtheria-carrier was somewhat conflicting; laboratory cultures showed many strains of diphtheria bacilli found in the throats of carriers to be quite as virulent as those occurring in the height of disease. Various estimates have been made as to the rôle of carriers in the dissemination and propagation of diphtheria. Moss and Guthrie of the Johns Hopkins Hospital followed fifty patients recovered from diphtheria for a period of many weeks, and were absolutely sure that no other persons were infected, although all of these patients harbored diphtheria bacilli in their throats.

DISASTERS AT SEA. See SAFETY AT SEA.

DISCIPLES OF CHRIST. A religious denomination called also CAMPBELLITES after Alexander Campbell of Bethany, W. Va. The denomination has had a rapid growth in recent years. There are two branches—the Disciples of Christ proper, and the Churches of Christ. The first is by far the more important. There were in 1913 1,362,711 communicants, 9076 churches, and 5592 ministers in this branch. The churches of the denomination lie chiefly in the Middle West and the South, though it is represented in nearly every State of the Union. There are also many churches in Australia and other parts of Great Britain, in Cuba, Philippines, Canada, and Scandinavia. Missionary work is carried on in Japan, China, India, Philippines, Hawaii, Cuba, and other countries. The Foreign Missionary Society has general charge of foreign missions, and the American Christian Missionary Society conducts the domestic missions of the denomination. The disciples rank third in the number of churches among the Christian Endeavor Society. It has also many strong educational institutions, including Bethany College, W. Va.; Hiram College, Ohio; Drake University, Des Moines, Ia.; Butler University at Indianapolis, Ind.; and Chrisitan University, Canton, Mo. See also RELIGIOUS DENOMINATIONS AND MOVEMENTS.

DISEASES, OCCUPATIONAL. See LABOR LEGISLATION and OCCUPATIONAL DISEASES.

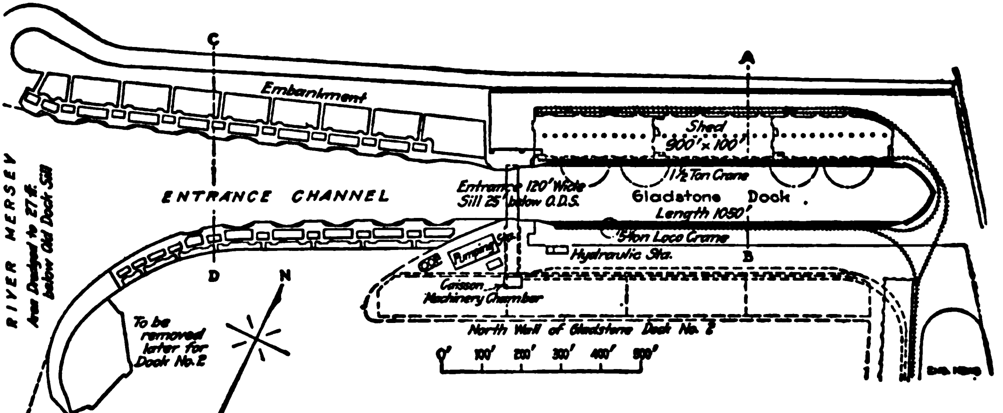
DISTRIBUTION OF FARM PRODUCTS. See AGRICULTURE.

DISTRICT OF COLUMBIA. LEGISLATION. Congress in 1913 passed two important measures relating to the government of the District The first of these was a public utilities commission act. This is very comprehensive and gives the commission power to fix rates and generally supervise all public utilities. The second was a loan shark law. This makes it illegal to engage in the business of loaning money at a greater rate of interest than 6 per cent. per annum, without procuring a license which is granted only after public hearing. Licensee is to give a bond for $5000. Loans may not be made at a higher rate of interest than 1 per cent. per month, and then shall include all fees, expenses, and charges of every kind. The interest may not be deducted from the loan when it is made. Violations of this law are punishable by fine or imprisonment, or both.

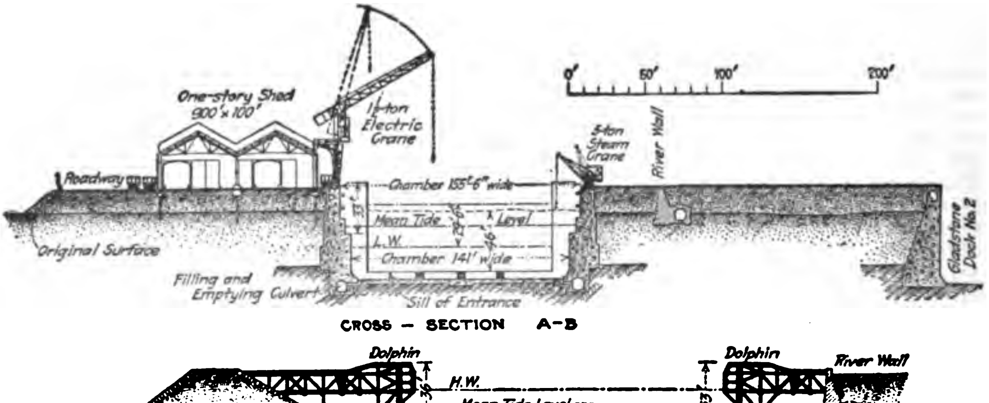
DIVORCE. See Marriage and Divorce.

DOANE, William Croswell. A bishop of the Protestant Episcopal Church, died May 16, 1913. He was born in Boston in 1834; graduated from Trinity College in 1863; and ordained priest in 1856. From 1858-60 he was rector of St. Mary's Church, Burlington, N. J.; from 1860-64 of St. John's Church, Hartford, Conn.; in 1867 of St. Peter's, Albany, where he remained until he became bishop of Albany in 1869. Bishop Doane was identified with the so-called high church branch of the Protestant Episcopal Church, and was the only bishop in the United States to wear the clerical garb of the bishops of the Church of England. He was the author of *Life and Writings of the Second Bishop of New Jersey* (1862); *Mosaics, or the Harmony of the Collect, Epistle and Gospel for the Sundays of the Christian Year; Sunshine and Playtime,* and *Rhymes from Time to Time.*

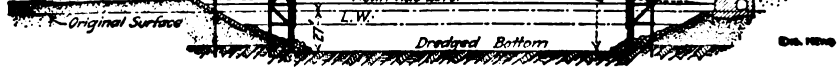
DOCKS AND HARBORS. The approaching completion of the Panama Canal and the anticipated increase in commerce aroused great activity in the improvement of harbor and port facilities on the Pacific coast. At San Francisco a few years previous bond issues of $9,000,000 and $1,000,000, the latter for the purchase of tide lands, had been voted and work was in progress of improving the water front, a comprehensive scheme of piers and interconnecting railways having been developed. The decision of the harbor commission of the State of California to substitute wooden wharves for some of the concrete piers originally intended, provoked considerable discussion. It was claimed that the provision of more extended facilities for the same money was an improper consideration and that the mud of the harbor was insufficient to stand the weight of concrete docks, while the disintegrating effect of water upon concrete structures was also to be considered. In view of the failure of a timber dock in San Francisco harbor and the fact that the best creosoted piles in San Francisco harbor have a life of but 12 to 15 years and the bond issues for wharf construction run for 75 years, the wisdom of the



PLAN



CROSS – SECTION A–B



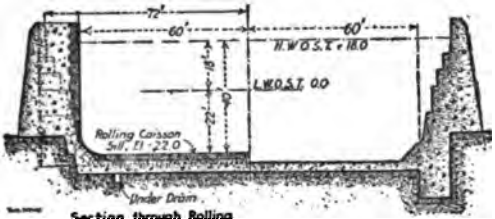
CROSS – SECTION C–D

The New Gladstone Wet and Dry Dock, Liverpool, England. Opened 1913.

harbor commission in deciding for timber structures that would have to be replaced five times during the life of the bonds, was assailed. The question was an open one during the year as great commercial activity was expected for the port.

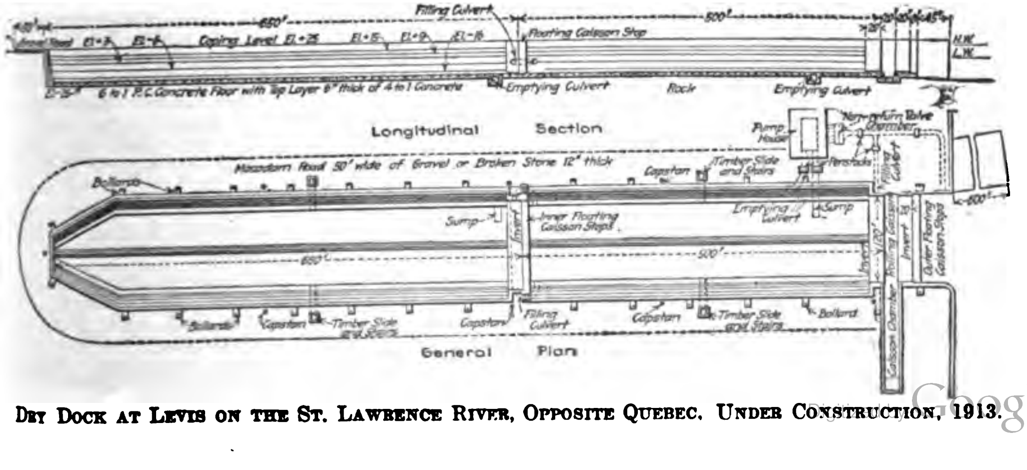
Gladstone Dock. During the year there was completed at Liverpool, England, the largest dry dock ever built. This new dock was 1050 feet in length and 120 feet high at the entrance, with a centre sill affording a depth of 46 feet at high tide and 35 feet at the lowest tide. The dock was designed for the large liners which use Liverpool harbor, especially the new Cunard liner *Aquitania*. As there is a range of tide in the Mersey at Liverpool of nearly 28 feet it is necessary to provide locks there, or wet docks where steamships of any size are loaded, or unloaded. Consequently, as in the case of the new Gladstone dock, what is ordinarily a wet dock can be used as a dry dock for the inspection and repair of the hull of vessels by pumping dry the water. The improvement further involved the excavation of an entrance channel about 1200 feet in length and 400 feet wide at its entrance, which diminishes to 120 feet in width at the entrance to the dock proper. This entrance has a chamber 155 feet 6 inches in width at the top and 140 feet wide at the bottom and provides a working chamber 120 feet wide, 1020 feet long, and 46 feet deep. A portion of the embankment of the entrance channel will later be removed to give place to dock No. 2. The side walls of the dock are of solid concrete founded on bed rock and the bottom of the dock is also of concrete 3 feet 6 inches in thickness. The entrance is closed by a sliding caisson, as the limited space prevented the use of gates. This caisson is of steel, 124 feet long on the outer face and 132 feet long on the inner, with a width of 25 feet. The maximum head acting against it in still water will be about 46 feet. It is moved by means of steel ropes connected with electric motors on the masonry at the south end of the caisson recess. A temporary float, or ship caisson, is provided should the main caisson require removal at any time for repairs or otherwise. The pumping plant consists of five sets of centrifugal pumps having discharge pipes 54 inches in diameter, each driven directly by a vertical four-cylinder Diesel engine of 1000 horse power capacity. These pumps will empty the dock of its entire contents, about 44,000,000 gallons, on an 18-foot tide, in two and a half hours. A one-story shed, 900 feet in length and 100 feet in width, is located on one side of the dock and electric cranes and a five-ton steam crane run on special rails along the side and around the head. There are two hyrdaulic capstans at the ends, each capable of hauling 20 tons and six 1-ton hydraulic capstans on the sides.

Boston Dry Dock. In connection with the developments in progress for the port of Boston plans were prepared for a new dry dock which was to be the largest in the world and able to accommodate the largest transatlantic steamers, several of which were expected to make Boston their destination. The dimensions provided for in the plans were as follows: Total length over all, 1200 feet; available interior length, 1162 feet; bottom entrance width, 120 feet; depth of water at outer sill, 44.8 feet at mean high water.



Section through Rolling Caisson Sill

Section through Altars



Dry Dock at Levis on the St. Lawrence River, Opposite Quebec. Under Construction, 1913.

A large dry dock was put under construction by the Canadian government on the St. Lawrence River, near Levis, Quebec. It was to have the following dimensions: Length from caisson stop to head wall, 1150 feet; width of entrance, 120 feet; depth on sill at ordinary high water, 40 feet. It was to be divided in two parts, 650 and 500 feet respectively, the outer entrance was to be closed by a steel rolling caisson, and a floating caisson will close the inner entrance. The pumping plant for emptying the dock was to consist of three electrically-driven centrifugal pumps, each having a capacity of 60,000 gallons per minute, supplied with current from three turbo-generators.

Belgium. The improvement of the harbors and waterways of Belgium continued to progress during 1913 and the extent of the work may be realized when it was stated that in the previous 20 years Belgium had expended over $80,000,000 on the ports of Antwerp, Ostend, Brussels, Bruges, and Zeebrugge. To connect Liege and Antwerp it was proposed to widen the Brussels-Charleroi Canal at an expense of about $2,000,000, while a canal 7¾ miles in length connecting the Louvain Canal with Hasselt, a distance of 31 miles, was proposed in order to give Antwerp and Brussels communication with Hasselt in view of the opening of the Campia coal field. The port improvement at Antwerp continued, involving the change of the channel and the construction of a new basin designed especially for grain ships with four elevators. At Zeebrugge further work was in progress towards deepening the channel, while at Nieuport additional harbor works were proposed. At Ghent deep water quay accommodations for over eight miles had been developed and basins, the last of which had a depth of 28 feet, had been provided for a water area of 247 acres. The canal had been deepened and other improvements made so that Ghent was second to Antwerp as a harbor and canal centre, with a tonnage amounting to nearly a million tons. Vessels drawing 26 feet and 460 feet in length were able to pass through all the locks.

Germany. The channel of the Weser at the port of Bremen was being deepened during the year from 16½ feet to 23 feet and also increased in width, while new grain piers and elevators capable of landing 800,000 tons a year were being added. The river Oder, below Breslau, was being improved in order to provide for the traffic between Silesia and Berlin and Stettin, while at Emden the Prussian government was improving the harbor, deepening the outer harbor to 37 feet, and constructing an inner harbor and lock, which was opened to traffic in October, 1913. This new lock connects the inner harbor with the river Ems and is 833 feet in length by 131 feet in width, and 43 feet deep. These improvements were due to the increased traffic carried by the Dortmund-Ems Canal.

Holland. During the year the Port Authority decided to construct at Amsterdam a new basin 11,000 feet in length, with a depth of 34 feet and a second lock at the entrance from the North Sea 1180 feet in length, 131 feet wide, with a depth of 46 feet. These improvements would require from seven to eight years for their completion.

There was under construction during the year the improvement of the navigation between Rotterdam and Liege on the river Meuse for a length of 100 miles, including the deepening of the channel and the construction of locks long enough to accommodate the large barges of the Rhine. This proposition involved joint action by the Belgian and Dutch governments and was a matter of considerable interest as the construction of a new canal on Dutch territory was possible.

France. The Floods Prevention Commission recommended the deepening of the channel of the Seine and when this is done large steam motor barges will be able to pass from Paris to Rouen. The plan adopted gives a channel 14 feet 9 inches between Suresnes and Bourgival at an estimated cost of $6,250,000. A new dam was to be built at Bourgival and the one at Bezout was to be done away with. Extensive improvements were in progress at Rouen where the traffic had increased in 1913 to 2½ million tons from 1 million tons in 1900, while at Havre improvements were necessary in order to hold the trans-Atlantic traffic which was going to Southampton when repairs were necessary for the largest ships. It was proposed to extend the southern jetty about 2 miles and to construct a second outer harbor and tidal dock. These works would require for their completion about five years and will involve a cost of some $16,000,000. Improvements at Bordeaux were also in progress and contemplated so that the channel depth, which is now sufficient for steamers drawing 22 feet would be increased by about 5 feet.

The King's Dock, the largest in the Far East, was opened at Singapore, Straits Settlements, on August 26, 1913. It is situated in Keppel Harbor at Singapore, and has a length of 852 feet over all, with a length of 800 feet on the blocks and it can be divided by means of an intermediate caisson into two compartments, one 486 feet and the other 325 feet in length. It has a width of 100 feet at the entrance. Between the coping stones and the body of the dock there is a distance of 128 feet, while the width of the floor is 90 feet. At low water the depth on the sill is 25 feet and at high water 34 feet, and the approaches are dredged to a depth of 33 feet below low water. See also Canals.

DODD, Amzi. An American lawyer, died January 22, 1913. He was born in Bloomfield, N. J., in 1823, and graduated from Princeton College in 1841. In 1848 he began to practice law in Newark, and in 1871 was appointed vice-chancellor. He took an active interest in politics. In 1856 he was defeated for Congress. Prior to going on the chancery bench he served as a member of the New Jersey Assembly, and served afterwards a second term, beginning in 1881. This was cut short by his election to the presidency of the Mutual Benefit Life Insurance Company of Newark, a post which he filled for twenty years. From 1872-82 he served as one of the special justices of the Court of Errors and Appeals.

DOMINICA. A presidency of the Leeward Islands (q.v.). Rosean (6577 inhabitants) is the capital. A favorable soil and climate adapt the island to the cultivation of various crops; but much of the land is untilled. Many of the coffee plantations have been abandoned on account of marauding maroons and plant disease; the depreciation in sugar has led to a reduction in the area under cane. Other products are cacao, (export 1911, 10,055 cwt.), limes and lime juice (£49,221), citrate of lime (£19,260), essential oils (£2309). External trade (calendar years) and finance (fiscal years) statistics for the presidency follow:

	1908-9	1909-10	1910-11	1911-12
Imports	£153,114	£128,779	£147,322	£164,695
Exports	112,013	102,339	112,111	124,678
Revenue	41,147	39,521	42,133	44,054
Expenditure...	37,178	41,860	39,603	38,792
Shipping*	746,640	713,227	694,985	642,809

* Tonnage entered and cleared.

Customs revenue (1911-12), £23,486. Public debt, £46,267. W. Douglas Young was administrator in 1913. The census (1911) returns about 470 Caribs in the island, 170 of pure blood. The majority of the population is negro. See LEEWARD ISLANDS.

DOMINICAN REPUBLIC, or SANTO DOMINGO. An independent state occupying the eastern part of the island of Haiti. The capital is Santo Domingo.

AREA, POPULATION, ETC. The estimated area is 48,577 square kilometers (18,756 square miles). Population by provinces (1913): Azua, 66,500; Barahona, 28,000; El Seibo, 51,000; La Vega, 83,000; Espaillat (Moca), 52,500; Monte Cristi, 36,000; Pacificador, 52,500; Puerta Plata, 49,000; Samaná, 12,000; San Pedro de Macorís, 24,000; Santiago, 194,000; Santo Domingo, 166,000; total, 724,500. Estimated population of the larger towns: Santo Domingo, 22,000; Santiago, 20,000; Puerta Plata (the chief port) and San Pedro de Macoris, 15,000 to 16,000 each; La Vega, 10,000 Sánchez, Samaná, Azua, and Monte Cristi, 4000 to 5000 each. In 1911 there were reported 27,407 births, 6603 deaths, and 2442 marriages. In 1911 there were 590 schools, with 20,453 pupils (boys and girls in nearly equal numbers).

PRODUCTION AND COMMERCE. Agriculture, together with cattle-raising, is virtually the only source of national wealth, as mining and manufacturing are little developed. The leading crops are sugar and cacao; other crops are tobacco, coffee, cotton, and bananas and other fruits. There is a considerable output of honey.

Imports and exports have been valued as follows, in American dollars:

	1909	1910	1911	1912
Imports..	$4,425,913	$6,257,691	$6,949,662	$8,217,898
Exports..	8,113,690	10,849,623	10,995,546	12,385,248

Leading imports in 1911 and 1912 respectively, in thousands of dollars: Iron and steel, 998 and 1627; cotton manufactures, 1617 and 1608; rice, 540 and 773; wheat flour, 407 and 453; meat and dairy products, 415 and 421; wood and manufactures thereof, 256 and 343. The chief exports are raw sugar and cacao; these exports have been as follows: In 1909, sugar $3.304,931 and cacao $2,759,191; in 1910, $5,590.536 and $2,849,585; in 1911, $4,159,733 and $3.902,111; in 1912, $5,841,357 and $4,248,724. Other exports in 1911 and 1912 respectively, in thousands of dollars: Leaf tobacco, 1421 and 670; coffee, 319 and 566; beeswax, 165 and 149; cattle hides, 104 and 122; bananas, 195 and 112; cotton, 47 and 102; goatskins, 80 and 97; honey, 59 and 77; lignum vitæ, 61 and 63. The trade by countries has been as follows, in thousands of dollars:

	Imports		Exports	
	1911	1912	1911	1912
United States........	4,120	5,100	5,751	7,275
Germany	1,266	1,628	2,947	1,774
United Kingdom.....	776	720	764	1,248
France	213	225	1,081	938
Spain	152	150	.....	.....
Italy	139	131	9	27
Porto Rico...........	85	42	52	48
Cuba	8	7	21	15
Other	189	215	371	1,070
Total	6,950	8,218	10,996	12,385

Vessels entered at the ports in the foreign trade in 1912, 599, of 641,548 tons (323 steam, of 379,539 tons), and cleared 477, of 379,147 tons (263 steam, of 356,124 tons). Merchant marine, 11 sail, of 1541 tons.

COMMUNICATIONS. A railway extends from Puerto Plata, on the north coast, to Santiago and thence to Moca. Another line extends from the eastern port Sánchez, on the Bay of Samaná, west to La Vega. A branch of the latter line runs north from Jina to San Francisco de Macorís, and another branch north from Cabullas to Salcedo. Salcedo is only a few kilometers east of Moca, so that construction of the short line of railway necessary to connect these town will effect rail communication between Puerto Plata and Sánchez. Length of railways, 282 kilometers (175 miles). In addition, there are private lines for the larger sugar plantations reported at 362 kilometers (225 miles). A line is projected to connect Manzanillo and La Vega; in the autumn of 1913 it was reported that a contract had been signed for the construction of a line from San Pedro de Macorís to San Lorenzo Bay. In 1913 the government undertook the improvement and extension of wagon roads. There are over 100 post offices.

FINANCE. The budget for 1912 balanced at $4,208,400. In 1910 revenue and expenditure were $4,705,738 and $4,645,287 respectively. Of the receipts in 1910, customs provided $3,121,642; imports and taxes, $475,058; railways, $284,422; and port dues, $60,366. The larger departmental disbursements were:

Finance and commerce, $1,939,106; interior, $670,453; war and marine, $521,360; public instruction and justice, $391,867; *fomento* and communications, $238,929. A treaty between the Dominican Republic and the United States authorized a loan of $20,000,000 for the conversion of the debt and established an American receivership of customs, from April 1, 1905. Obligations are met promptly.

GOVERNMENT. The legislative power is vested in a congress consisting of the Senate (12 members, elected for six years) and the Chamber of Deputies (24 members, elected for four years). According to the constitution, the president is elected by indirect vote for six years. Gen. Ramón Cáceres, who was installed as president in 1906 to complete his predecessor's term and was inaugurated for a full term July 1, 1908, was shot and killed by an assassin November 19, 1911. On the 2d of the month following Eladio Victoria, a senator, was elected provisional president by the Congress, and president February 2, 1912. He was inaugurated February 28; influenced by revolutionary outbreaks, he resigned in November, 1912, and on December 2, Archbishop Adolfo Alejandro Nouel was elected provisional president. Nouel resigned early in 1913, and Gen. José Bordas Valdés was elected provisional president, assuming office April 14, with the following cabinet: Gen. Julian Zorilla, minister of the interior; Ramón O. Lovaton, foreign affairs; Mario A. Saviñon, treasury and commerce; Apolinar Tejera, justice and education; Gen. Tadeo Alvarez, war; Ricardo Limardo, *fomento* and communications; Enrique Montes de Oca, agriculture.

HISTORY. One of the first measures taken up by the new cabinet of 1913 was the elaborate plan of Sr. Limardo for the construction of roads, bridges, and drains throughout the republic. A project for a railway to run from Manzanillo bay to Concepcion de la Vega was approved by the Senate, and promised materially to increase the meagre railway facilities of the country. The minister of war, Gen. Alvarez, also came forward with proposals. He wished to modify the army law so that the period of service would be four years for illiterates and two for literates. The decimal system of weights and measures was put into effect on August 1; new census was begun on June 22; and a pure food law was enacted.

The government lacked support, however, and during the summer months it became evident that trouble was brewing in the north. Finally actual revolt broke out and during September the rebel General Horacio Vasquez entrenched himself in Puerto Plata, on the northern coast, and gained control of the neighboring portion of the railway, which by the way, had much to do with the trouble.

The government could not quell the rebellion, although the bombarament of Puerto Plata was begun; and it became necessary for British and American ships to protect the interests of foreigners in Puerto Plata. On September 9, Mr. James M. Sullivan, newly appointed U. S. minister to Santo Domingo, left Washington to confer with the rebel leaders. He succeeded in convincing Gen. Vasquez and Gen. J. Cespedes that the United States would be unfavorable to a successful revolution and would refuse the payment of customs collections to a revolutionary government. This threat, together with a guarantee against reprisals and a promise of free elections, induced the rebels to capitulate on October 21, a new revolutionary plot was detected and frustrated in November, when a large consignment of ammunition destined for the rebels was discovered and confiscated in New York.

On December 15 elections were held for a constituent assembly, which should revise the constitution. It had been the intention of Mr. Sullivan, in accordance with his assurances to the rebels, to send Americans to "watch" at the polls in the interest of fairness; this intention he expressed in a note of December 3. The Dominican government, however, replied that "President Bordas could not, without violating the fundamental covenant which governs us, admit officially interference of a foreign element into our body politic in matters of internal concern pertaining to the exercise of national sovereignty." The watchers were, therefore, not recognized officially, nor admitted to the polls, but treated simply as "tourists." The constituent assembly was to meet in January, and a session of Congress was called for January 4, to discuss the validity of the elections in cases where the opposition candidates withdrew from the contest.

DORR, JULIA CAROLINE RIPLEY. An American poet, died January 18, 1913. She was born in Charleston, S. C., in 1825. Her mother died when she was still an infant and she was taken by her father to Vermont in 1830. In 1847 she married Seneca R. Dorr. From 1848 she was a prolific writer for periodicals; fifteen volumes of her prose and verse have been published. She gained a reputation as a poet, but was almost as famous because of her friendship for the famous men and women of the middle of the nineteenth century. She belonged to the famous Cambridge group, which included Emerson, Holmes, Longfellow, Lowell, Julia Ward Howe, and many others. These persons were frequent visitors at her home in Vermont. Among her published works were: *Farmingdale; Landmere; Sibyl Huntington; Bride and Bridegroom; Friar Anselmo* (1879); *Afternoon Songs* (1885); *Poems Complete* (1892); *The Flower of England's Face; Afterglow* (1900); and *Beyond the Sunset* (1909).

DOUGLAS, SIR ARCHIBALD. An English admiral, died March 5, 1913. He was born at Quebec, Canada, in 1842, and entered the navy in 1856. From 1873-5 he was director of the Imperial Japanese Naval College in Yedo. He was afterwards appointed a member of the ordnance committee, until he was given command of the *Edinburgh* in the Mediterranean in the autumn of 1890. In 1898 he was made commander-in-chief in the East Indies, but a year later resigned this command to become second sea lord in the admiralty. He was appointed commander-in-chief in the North America and West Indian station in 1902, having in the meantime been promoted to be vice-admiral. After his return from the North American command he was made commander-in-chief at Portsmouth, a post to which no officer of his rank had been appointed for forty years. In 1905 he was promoted to be admiral, and in 1907 retired from active service.

DOUMERGUE GASTON. See *Doumergue Ministry*, under FRANCE, *History*.

DOWINE. See VETERINARY SCIENCE.

DOWDEN, EDWARD. An English scholar, literary critic, and educator, died April 4, 1913. He was born in Cork, Ireland, in 1843, and was educated at Trinity College, Dublin. His career at the university was brilliant. He won the vice-chancellor's prizes for English verse and English prose and was president of the Philosophical Society. Four years after his graduation, when only twenty-four years of age, he was appointed professor of English literature in Dublin University, a chair which he held until the time of his death.

His great interest was in Shakespeare, and he conceived the idea of a book in which the study of Shakespeare's works should be connected with a quest for the personality of the author, and which should include, as far as possible, observation of the growth of his intellect and character from youth to maturity. This resulted, in 1875, in the publication of *Shakespeare: His Mind and Art.* It was followed, in 1877, by a *Shakespeare Primer.* In 1889, he gave his first series of Taylorian lectures at the University of Oxford. From 1893-6 he served as Clark lecturer at Trinity College, Cambridge. In the latter year he also delivered a course of lectures on the French Revolution and English literature at Princeton University. He received a degree of LL. D. from this university, following the delivery of the lectures.

In the meantime he had written other books, among them a notable *Life of Shelley*, published in 1886. He continued to write books dealing with English and other literatures. Notable among his works, in addition to those already mentioned, are: *Poems* (1876); *Studies in Literature* (1878); *Transcript and Studies* (1888); *Introduction to Shakespeare* (1893); *New Studies in Literature* (1895); *A History of French Literature* (1897); *Robert Browning* (1904); *Michel de Montaigne* (1905); *Essays: Modern and Elizabethan* (1910). He also edited *Shakespeare's Sonnets; Southey's Correspondence with Caroline Bowles*, and the *Correspondence of Henry Taylor*, the poetical works of Shelley, Wordsworth, and Southey, and edited some of the most important plays of Shakespeare.

DRAESEKE, FELIX. A German composer, died February, 1913. He was born in Coburg, in 1835, and studied music at the conservatory in Leipzig, afterwards going to Weimar, where he became one of the enthusiastic admirers of Liszt. He also became friendly with Von Buelow and went to Dresden, where from 1864-74 he was head of the Lausanne Conservatory. In 1874 he succeeded Wuellner at the Dresden Conservatory. Here he remained for several years and received many honors from the royal family. He wrote several operas which enjoyed popularity, and some religious music.

DRAINAGE. UNITED STATES. An indication of the growing interest in reclamation of wet and overflowed lands was the number of drainage laws and amendments passed in the various States. Massachusetts made an initial appropriation of $15,000 for reclaiming wet lands; Michigan was to submit to the people a constitutional amendment authorizing counties to issue bonds for drainage and other agricultural enterprises; Vermont authorized municipalities to issue bonds for long-time loans to farmers for drainage works. Idaho provided for the organization of drainage districts, but the act was declared invalid. The drainage laws of Missouri and Washington were revised, and changes were made in the laws of Illinois, Indiana, Iowa, Kansas, Nebraska, South Dakota, Oregon, and Utah. Nevada authorized its counties to drain swamp lands dangerous to health.

In North Carolina there are some scores of districts for draining swamp lands in the Coastal Plain and overflowed areas in the Piedmont section. In South Carolina, districts were organized in Hampton and Jasper counties and in Horry County; Charleston County was being divided into drainage units. Plans were prepared for a district in Ware County and a survey was made near Baxley, in Georgia. The State of Florida had dredges excavating large canals in the Everglades, but eminent engineers have reported the drainage plans inadequate. The State Geological Survey published plans for reclaiming large areas of overflowed lands along the Kaskaskia and Embarrass Rivers, in Illinois. Contract was let for digging one of the big diversion ditches for Cypress Creek, in Desha County, Arkansas. In 1913 there were at least 42 projects under way for draining low coastal lands in Louisiana, aggregating 248,700 acres: there were mostly private corporations, rather than districts organized under the drainage laws. Plans were made dividing Jefferson County, Tex., into 33 drainage districts, some of which would require pumping plants. Construction was begun in one district. Tile drainage was rapidly being introduced into the southern and eastern States. In the upper Mississippi valley, large tile was being much used instead of open ditches.

The greater part of the western irrigated lands must be artificially drained to prevent water-logging and the concentration of injurious salts. The United States Reclamation Service was planning drainage systems for many of its irrigation projects, to correct or to prevent injury. In the Yakima Valley, Wash., districts were constructing open ditch and large tile drains; in places the work is very costly, owing to the almost fluid condition of the saturated soil. In the San Luis Valley, Col., where high cost has deterred many districts from undertaking drainage work, the progress of the Carmel drainage district gave indication of highly satisfactory results. The endeavor was being made to have this whole valley coöperate to secure a large outlet drain. The four drainage districts in the Pecos Valley, N. M., were waiting for a court decision as to the validity of the statute. Construction was begun for draining injured lands near Safford, Ariz., in the Gila Valley. The drainage of individual farms in western States was becoming increasingly common. The California experiment station undertook a thorough study of the needs and methods of drainage, in coöperation with the United States Department of Agriculture.

FOREIGN COUNTRIES. A project is under way for reclaiming 26,000 acres on the Columbia River, south from Golden, British Columbia, partly by the use of dikes, and a similar reclamation on that river near Ivermere, B. C., was being considered. Work on the Roque Canal in Matanzas Province, Cuba, 31 miles long, was about 20 per cent. completed. More than a thousand acres are already reclaimed and planted to cane, and the completed project will drain 27,000 acres, including the Majoguila and Guayobeque swamps. The ministry of agriculture of Argentina has established an office for the study of the problems and methods of irrigation, drainage, and related agricultural improvements. It was estimated that $3,600,000 would be required to complete the surface drainage works in Buenos Aires Province, Argentina. The drainage of Navarro Laguna is also being considered. In Hawaii, contracts were let for filling the low lands of Kewalo, Honolulu.

The reclamation of marsh lands in Holland continues at the rate of 20,000 to 25,000 acres per year; yet it is stated authoritatively that there are 250,000 acres of the best soil under waste waters—not including the areas of rivers, canals, or the Zuyder Zee. A recent plan for draining the Zuyder Zee—a scheme 50 years old—proposed an embankment, 182 miles long, to enclose 523,000 acres of drained lands and a lake of 358,000 acres to store the flow from rivers when high tides prevent flow into the sea. The total cost was estimated at $75,000,000, exclusive of interest, the time of completion 33 years, and the first land to be fit for cultivation in 17 years. The Russian government was reported to have appropriated $14,800 for investigating the prevention of overflow in the delta of the Terek River, in the North Caucasus. In Roumania, the reclamation of 40,000 acres of swampy land along the Punth, by diking, is being considered.

Work progressed on the project for draining a million acres in northern Egypt. The parliament of South Australia passed a loan bill, including items for irrigation and drainage, $1,240,000, and for drainage in the southeastern district, $250,000. Dredging, in progress in Kashmir, India, has lowered the surface of Woolar Lake 6 feet. It was to be lowered 8 feet more, reclaiming 90,000 acres in all, estimated worth, $7,200,000 for agriculture, at a cost of $3,100,000. Progress was made in draining Bapatla swamps, on the Appapuram scheme in the Kistna delta, and on the Yenemadurn drain of the Godivari system, in south India. In the Korning district of Kwangtung Province, south China, an American firm installed five pumps, each of 5000 gallons per minute discharge, for draining rice fields, and three irrigation pumps. Although the season was unusually wet, an early rice crop was harvested, and this success has led to other similar contracts with the same firm.

DRAKE, JAMES MADISON. American soldier and journalist, died November 29, 1913. He was born in Somerset County, N. J., in 1837. In 1853 he became editor of a newspaper in Trenton, N. J. In 1857 he started *The Evening News* in Trenton, and in 1860 the *Wide Awake.* He enlisted in the Union army, and served until 1865. Taken prisoner at Drury's Bluff, Va., in 1864, he escaped from prison in Charleston, S. C., and after a tramp of 1000 miles reached the Union lines at Knoxville, Tenn. He was awarded a congressional medal of honor for distinguished gallantry, and was brevetted brigadier-general by special act of the legislature of New Jersey. From 1868 to 1881 he was publisher of the *Daily Monitor* at Elizabeth, and from 1882 to 1887 published the *Elizabeth Sunday Leader.* He was publisher of the *Elizabeth Daily Leader* from 1887 to 1900. He was author of: *Fast and Loose in Dixie; Across the Continent in Red Breeches; Historical Sketches of the Revolutionary and Civil Wars,* and *New Jersey in the War for the Union.*

DRAMA, AMERICAN AND ENGLISH. The theatre season of 1913, in both America and England, was comparatively barren of artistic achievement, and, from the box-office standpoint, the worst for a decade. As a matter of history, the most interesting phenomenon of the theatrical year was an unprecedented movement, instituted in America, toward the frank discussion of subjects which had formerly been forbidden in the theatre. This movement was unintentionally started, in the month of March, by Richard Bennett, when he organized a company for the presentation of *Damaged Goods,* an English version of *Les Avariés,* by Eugène Brieux. This work, by the greatest living dramatist of France, is a study of the disease of syphilis in its bearing on marriage. The piece was first presented in New York at two private matinées, conducted under the auspices of the Sociological Fund of the *Medical Review of Reviews;* but it was soon presented publicly as the regular bill of the Fulton Theatre. It ran for three months to crowded houses; and, throughout the remainder of the year, it was acted, with undiminished success, in nearly all the leading cities of the country.

But less disinterested managers soon strove to turn to their own profit the awakening of public interest in the social evil; and, in the autumn season, the theatre was flooded with plays purporting to reveal the hitherto hidden secrets of the seamy side of life. The first of these plays, *The Lure,* was produced in August. It was a scarcely skillful melodrama, written by a new author, George Scarborough, who had been engaged for some years, as a Federal agent, in combatting the so-called "white slave traffic." *The Lure* was written with evident sincerity; and if, in certain passages, it seemed untrue to life, it was only because of the author's lack of practice as a playwright. Bayard Veiller, the author of *Within the Law*—a melodrama which ran uninterruptedly in New York throughout the entire year—wrote into his new play, called *The Fight,* a second act which was set in a brothel. In response to the protests of a certain section of the public, the police threatened to prevent further performances of both *The Fight* and *The Lure.* As a result of the public scandal, the brothel scene was removed from *The Fight,* and *The Lure* was rewritten in such a way as to eliminate the features that had been objected to. It is doubtful whether any good was effected by the acrimonious discussion that was stimulated by these plays; and the situation, as a whole, must finally be regarded as unfortunate for the American theatre.

Closely related to these plays was a melodrama called *To-day,* by George Broadhurst and Abraham S. Schomer, in which a husband finds out that his wife has been earning money by illicit intercourse with other men, and kills her in the house of assignation where he has discovered her perfidy. A less objectionable drama of this general type was *The Family Cupboard,* by Owen Davis. A husband and wife of mature years have drifted out of sympathy, and the husband has formed an alliance with a chorus-girl. The discoverey of this intrigue breaks up the family, and the discarded chorus-girl resolves to be revenged upon her former protector by making his son fall in love with her. She succeeds in her purpose; and the crisis comes when the inexperienced youth discovers that the girl he loves has been formerly the mistress of his father. Somewhat allied to these plays in subject-matter, but not at all in spirit and in tone, was *Ourselves,* by Rachel Crothers. This piece sets forth the unsuccessful efforts of a philanthropic woman to reform a girl of the streets by taking her into her own home.

The impulse toward the production of children's plays, which was inaugurated during the fall of 1912, continued through the early months of 1913, and ultimately bore fruit in the finest theatrical achievement of the year. This was *The Poor Little Rich Girl,* a play of fact and fancy, by Eleanor Gates, a writer previously

EUGÈNE BRIEUX

Photo by Paul Thompson, N.Y.

HENRI BERNSTEIN

SIR JOHNSTON FORBES-ROBERTSON
In "Mice and Men"

CYRIL MAUDE
In "The Second in Command"

DRAMATISTS AND PLAYERS PROMINENT IN 1913

known as a novelist, but unknown in the theatre. This play presented the unfortunate situation of a little girl withheld from real enjoyment of the life of childhood by the luxury with which she was surrounded. It exhibited an extraordinary knowledge of the psychology of childhood, and was an imaginative achievement of a high order. There was a successful production of this play in London, in December. Late in the year, the same author produced a second play, entitled *We Are Seven*, a whimsical farce, on the whole, disappointing. Inferior to *The Poor Little Rich Girl* was another play for children entitled *A Good Little Devil*. This piece was adapted from the French of Rosemonde Gérard and Maurice Rostand, the wife and the son of the famous author of *Cyrano de Bergerac*. The original text was written brilliantly in verse, and much of its wit and charm were sacrificed in an English prose translation. The piece, however, was beautifully produced by David Belasco.

The vogue of "crook" plays, which was started by the phenomenal success of *Within the Law*, continued, almost unabated, throughout the year. The most interesting of these melodramas of the underworld was *The Master Mind*, by Daniel D. Carter, which exhibited the machinations of a clever criminal who employed many minor "crooks" to do his bidding. *At Bay* was not a plausible, but still an entertaining, melodrama, written by George Scarborough, the author of *The Lure*. The heroine, caught in the toils of a blackmailing lawyer, stabs him with a paper-file; and she is assisted to escape the consequences of this assault by a genial Irishman, who plays fast and loose with the detectives of the United States secret service. The final "crook" play of the year was written by Roland Burnham Molineux. It was entitled *The Man Inside;* and it advanced a specious argument that society ought to assume toward the criminal classes an attitude not punitive, but reformatory.

Among the leading British dramatists, Sir Arthur Pinero remained silent throughout the year. Henry Arthur Jones made no production in America; but he published a serious play entitled *The Divine Gift*, and successfully produced in London a light comedy called *Mary Goes First*. This witty piece, which deals with the ambition for social precedence, was delightfully acted by Marie Tempest. George Bernard Shaw produced two failures in London—one of which, *Androcles and the Lion*, is likely to be remembered among his works. His *Cæsar and Cleopatra* was revived in America by Sir Johnston Forbes-Robertson; and late in December, his early comedy, entitled *The Philanderer*, was imported to New York with a company rehearsed by Granville Barker. The performance was not notable; and the play itself, in comparison with Shaw's later compositions, seemed monotonous and dull. James Matthew Barrie was made a baronet in the spring. His new play, *The Adored One*, mystified the public and the critics of London, and failed to achieve his usual measure of success. Barrie's chief contribution of the year consisted of two one-act plays, entitled, *Half an Hour* and *The Will*. Both of these compositions revealed an acrid disenchantment which seemed all the more discomforting as coming from the author of *Peter Pan*. Stanley Houghton, the gifted author of *Hindle Wakes*, contributed a new comedy, entitled *The Younger Generation*, the theme of which was the familiar axiom that "crabbed age and youth cannot live together." This piece was somewhat thin in substance, but it exhibited an extraodinary technical accomplishment. This talented young writer—the leader of the new realists in England—died at Manchester in the month of December; and the loss of his admirable mind must be recorded as the greatest set-back which the English theatre suffered during the course of 1913. *Prunella*, a Pierrot-play in prose and rhyme, by Lawrence Housman and Granville Barker, which had previously been exhibited in London, was produced at the Little Theatre in New York. In sheer beauty of visual projection, this production was the most poetic achievement of the year. The most successful play of the London season was *The Great Adventure*, a dramatic version by Arnold Bennett of his own novel, entitled *Buried Alive*. This play was novelistic in structure, but it held the interest from the outset to the end. It was deeply true in characterization, and humorously human in dialogue. In New York, it was less successful when it was imported by Winthrop Ames to open his new theatre, called the Booth. An attempt had been made by David Belasco to forestall the appeal of the piece by the previous production of a play with a somewhat similar theme. This play, entitled *The Temperamental Journey*, was adapted by Leo Ditrichstein, from the French of André Rivoire and Yves Mirande. The second most successful play of the London season was also presented less successfully in America. This was *General John Regan*, written by Canon Hannay, of St. Patrick's, Dublin, a writer new to the theatre who had previously published several novels signed with the pen-name of "George A. Birmingham." The piece is nothing more than an amplified anecdote, wherein the technical method employed by Lady Gregory in her one-act plays has been extended to cover a three-act comedy; but it is developed with extraordinary richness of characterization and written in a dialogue that is unusually humorous. Among minor works by established British playwrights must be mentioned *The Land of Promise*, in which W. Somerset Maugam made a scarcely successful blending of the themes of *The Great Divide* and *The Taming of the Shrew*, and *Tante*, a dramatization by C. Haddon Chambers of a novel of the same name by Anne Douglas Sedgwick, in which Ethel Barrymore was afforded an opportunity for a notable performance of a woman suffering from the egotistical perversity of disposition which is popularly termed the "artistic temperament."

Among continental plays produced in English during the course of the year, the most important was *La Flambée*, by the Belgian playwright, Henry Kistemaeckers, which was acted in London under the title of *The Turning Point*, and in New York under the title of *The Spy*. The piece, however, was badly acted in New York, and failed to achieve the success that was warranted by its technical dexterity. Late in the year, Henry Bernstein's *The Secret*, which had been acted in Paris by Mme. Simone, was reproduced in America by David Belasco. It was a work of astonishing technical accomplishment, but, like most of Bernstein's plays, it was lacking in the element of human sympathy.

The Five Frankforters, which had been favorably received in Germany, was acted in both England and America. This domestic comedy by Carl Rossler, purported to narrate an episode in the early history of the Rothschild family. *Where Ignorance is Bliss*, a comedy translated from the Hungarian of Ferenc Molnar, failed flatly in New York. It was technically clever; but it was too mechanical in its theatricism to interest the American public.

Next to *The Poor Little Rich Girl*, the best American play of the year was *Romance*, by Edward Sheldon. In this work, the talented author shifted from the realistic to the romantic method and surpassed all his previous productions. The play detailed a love-affair between a prima donna of somewhat wide amatory experience and a young minister of the gospel who had had no previous experience with women. *Peg O' My Heart*, by J. Hartley Manners, was the most successful American production of the season. It ran throughout the entire year, without even an intermission in the summer. It was, however, merely a common-place comedy in which the crude manners and true heart of an uncultivated Irish girl were contrasted with the finished manners and shallow hearts of her wealthy English relatives. Augustus Thomas scored another failure with *Indian Summer*, a skilfully planned and ably written play which discussed too many themes that were apparently unrelated to each other, and therefore made a scattering impression. *Fine Feathers*, by Eugene Walter, was an effective fabric, but it seemed more artificial and less human than this author's earlier plays. A new pair of collaborators, Charles Goddard and Paul Dickey, came forward with two plays, *The Ghost-Breaker* and *The Misleading Lady*. Both pieces exhibited considerable ingenuity in theatrical invention; and the latter, the better of the two, discussed a serious theme. In *The Strange Woman*, which was beautifully played by Elsie Ferguson, William J. Harlbut set forth a sharp contrast of character between an accomplished woman of the world and the provincial and narrow minded inhabitants of a little town. *The Marriage Game*, in which Anne Crawford Flexner argued that married women should continually exert themselves to retain the affections of their husbands, was mildly entertaining; and in *The Things That Count*, a new writer, Lawrence Eyre, furnished a pleasant little sentimental comedy for the Christmas season.

Among the lighter plays of American authorship, the most ingenious was a melodramatic farce, entitled *Seven Keys to Baldpate*, which was dramatized by George M. Cohan from a novel by Earl Derr Biggers. A flippant and entertaining farce, entitled *Believe Me, Xantippe*, was produced by a new writer, Frederick Ballard, the latest graduate of the Harvard school of playwrights. The highly successful stories by Montague Glass, which set forth the personal problems of *Potash and Perlmutter* were successfully compounded into a play by an unannounced collaborator. The last spectacle that was presented at the Century Theatre before that institution was turned over to the production of opera in English was a Biblical play by Louis N. Parker, entitled *Joseph and His Brethren*. This panoramic narrative was subsequently reproduced in London by Sir Herbert Tree.

A new small and successful theatre, the Princess, was opened in New York for the express purpose of producing one-act plays. The policy of the house was patterned after that of the Grand Guignol in Paris. The dozen diminutive dramas which were produced during the course of the year all fell into two classes,—those designed to produce a shock of horror and those designed to induce a titillating sense of the imminence of impropriety.

Sarah Bernhardt made a record-breaking tour of America, appearing twice a day in a chain of vaudeville theatres. At each performance she gave a single act selected from one of the best-known pieces in her repertory. At the age of sixty-nine she still showed herself a master of the theatre and delighted a loyal public with her art. Another great performer, Sir Johnston Forbes-Robertson, was knighted in the spring, and embarked upon a farewell tour of the English-speaking countries. He made his final appearance in England at the Theatre Royal, Drury Lane, in the part of Hamlet, of which he is the greatest living exponent. Subsequently he played a farewell season in New York, adding the parts of Shylock and Othello to his classic repertory and appearing also in five modern plays. After a supplementary tour of the leading cities of the United States and Canada this great actor will withdraw permanently from the stage. Still another admirable actor, Cyril Maude, was welcomed to America in a repertory of notable impersonations.

DRAMA IN EUROPE. See FRENCH, GERMAN, ITALIAN, RUSSIAN, and SCANDINAVIAN LITERATURE.

DRAMA SOCIETY. An organization formed with the general purpose of interesting its members in the best plays and in obtaining their support for them. It includes a method of distributing tickets, and, also, reports of the plays made by a committee composed of experts in the drama, representative men and women in business, social activities, and the arts allied to drama. This committee attends "first nights," and reaches its decisions by a majority vote. When a play is placed on the society's list, a bulletin reporting the fact is sent out to members. Members pay a subscription price for which they receive a certain number of tickets. The society resulted from a movement begun about ten years ago in the People's Institute, New York City. Charles Sprague Smith, then president of the institute, organized a drama committee and made arrangements with the managers by which plays which it recommended should be open to workmen, school children, and school teachers, at half price. In this movement they were very successful. The society has been well supported, and the results achieved have been on the whole most satisfactory. The president is Mrs. E. R. Hewitt; secretary, John Corbin; treasurer, Thomas W. Lamont.

DRAPER, ANDREW SLOAN. An American educator and public official, died April 27, 1913. He was born in Westford, N. Y., in 1848. When he was seven years of age, his parents removed to Albany, where he was educated in the public schools, at the Albany Boys' Academy, and the Albany Law School. From the latter institution he graduated with the degree of LL.B. in 1871. For five years he practiced law as a member of the firm of Draper & Chester in

Albany. In 1881 he served a term in the House of the Assembly. He was elected State superintendent of public instruction at Cleveland, O. In that city he remained for two years, reorganizing the school system. This position in turn he resigned in 1894 to become president of the University of Illinois. During his administration the institution erected a dozen buildings and advanced from 750 to 3900 students. When the two State educational departments in New York were united in 1904, a special provision was inserted in the law to make Dr. Draper eligible, and he was made commissioner of education. His term expired on March 31, 1910, and he was reappointed by the regents of the university for an indefinite term. Dr. Draper's achievements during his term of office include the inception and completion of the State educational building at Albany, costing $4,000,000; the enactment of rural schools supervision law; the reorganization of the normal schools; the organization of the State examination board; the advancement of professional education through a stricter administration of the law; and the enactment of a State scholarship law. From 1902 he was a member of the United States Indian commissioners, and was for several years its chairman. He edited several volumes of reference works, and in 1900 was awarded a silver medal at the Paris exposition for a monograph on the organization and administration of the American school system. He was also awarded medals at the St. Louis exposition. He was the author of *The Rescue of Cuba*, and *American Education*. He also published numerous addresses.

DREADNOUGHT. See Battleships.

DREDGING. See Docks and Harbors, and Panama Canal.

DRUG HABIT. See Cocaine and Morphine Habit.

DRY DOCKS. See Docks and Harbors.

DUAL ALLIANCE. See France, *Foreign Affairs.*

DUHRING, Louis Adolphus. An American dermatologist, died May 8, 1913. He was born in Philadelphia in 1845, and graduated from the medical department of the University of Pennsylvania in 1867. After serving for a time as resident physician in the Philadelphia Hospital, he studied dermatology in the hospitals of Paris, London, and Vienna, and in 1870 he opened a dispensary for skin diseases in Philadelphia, of which, until 1880, he was physician. From 1871-76 he was clinical lecturer at the University of Pennsylvania, and from 1876 until his death was professor of diseases of the skin at that university. Among his writings are: *Atlas of Skin Diseases* (1876), *Practical Treatise of the Skin* (1877), *Cutaneous Medicine* (1898), and numerous other works on dermatology.

DUNKARDS. See Brethren, Church of the.

DUNKERS. See Brethren, Church of the.

DUTCH EAST INDIES. Certain colonial possessions of the Netherlands lying between Australia and the Asiatic continent, and consisting of Java (16 residencies), Madoera (1 residency), and the outposts (17 provinces). Capital, Batavia.

Area and Population. The area and population (end of 1905) of Java, Madoera, and the outpost provinces (approximate) appear in the following table:

	Sq. m.	Pop.
Java	48,686	28,604,719
Madoera	2,090	1,493,289
Outposts		
Island of Sumatra:		
Sumatra, West Coast	31,788	....
Padang Highlands	.....	403,431
Padang Lowlands	.....	905,040
Tapanoeli	.....	413,301
Benkoelen	9,437	204,269
Lampong Districts	11,338	156,518
Palembang	53,718	796,352
Sumatra, East Coast	35,481	568,417
Atjeh	20,550	582,175
Riouw *	16,379	112,216
Banka	4,473	115,189
Billiton	1,869	36,858
Borneo, West District	56,061	450,929
Borneo, South & East Dists.	157,587	782,726
Island of Celebes: †		
Celebes	49,600	415,499
Menado	22,177	436,406
Amboina †	19,870	299,004
Ternate †	176,598	370,902
Timor	17,782	308,600
Bali and Lombok	4,068	523,535
Total	739,559	37,979,377

* Consists of Indragiri in Sumatra and the Riouw and Lingga archipelagoes. † Included in Ternate are a part of eastern Celebes Island, Dutch New Guinea, and a part of the Moluccas; the rest of the Moluccas are in Amboina. Dutch New Guinea extends to 141° E., with estimated area, 152,428 square miles, and estimated population, 262,000.

Exclusive of New Guinea the native population numbered 37,020,460, of whom 29,715,908 were in Java and Madoera; Europeans, 80,910; Chinese, 563,449; Arabs, 29,588; other Orientals, 22,970. Batavia, the capital, had 138,551 inhabitants; Sourabaya, 150,198; Sourakarta, 118,378; Semarang, 96,600; Pehalongan, 41,719; Djokjakarta, 79,567; Padang, 91,440; Bandjermassin, 16,708; Macassar, 26,145.

Production. Official returns of areas under main crops in 1910 give 3,274,264 bahoes under rice (1 baho=1¾ acres), with 84,286,647 piculs production; 213,856 under sugar-cane, 20,459,495 piculs sugar; tobacco, 213,532 bs.; indigo, 17,940; under other crops, 3,213,941. In Java the government coffee plantations covered 72,192 bahoes, producing 32,067 piculs; production from emphyteutic plantations, 172,336 piculs, and from private estates, 13,818; total native culture (Dutch East Indies), 79,914. The tobacco produced on government lands was 830,568 kilos; on emphyteutic plantations, 8,064,555; on private estates, 436,409. From Java came 15,055,083 kilos of tea, 289,527 of indigo (1906), 1,180,849 of cacao (1910).

The government mines at Banka yielded (1910-11), 270,170 piculs of tin; private mines at Billiton and Riouw, 73,110 piculs. The output of coal in 1910 was 542,947 metric tons; of petroleum, 1,491,382 tons. Other mining products are gold, silver, diamonds, copper, and manganese.

Commerce and Communications. In the following table will be found trade figures for merchandise, specie, and total imports and exports, government and private trade, values in thousands of florins:

	Imports			Exports		
	Mdse.	Sp.	Total	Mdse.	Sp.	Total
J. & M.	219,493	14,250	233,743	259,010	433	259,453
Outposts	95,839	3,058	98,897	163,075	609	163,684
Total private	315,332	17,308	332,640	422,085	1,052	423,137
Total govm't.	10,014	2,640	12,654	29,461	....	29,461
Total	325,346	19,948	345,294	451,546	1,052	452,598

Export of sugar (thousands of florins), 142,682; copra, 42,217; tobacco, 37,893; tin, 32,437; petroleum, 21,692; gums, 14,685; coffee, 11,845; tea, 11,503; rubber, 10,032; pepper, 9697; rice, 8490; rattans, 6934; quinine, 5087; nutmegs, 2580. There entered at the ports in the 1910 trade 6486 steamers, of 11,763,000 cubic meters capacity, and 1972 sailing, of 381,000. The merchant marine included 12,669 vessels, of 626,292 cubic meters capacity. Railways (1910): 2230 kilometers in Java, 337 in Sumatra; local lines in Java, 2025 kms., and in Sumatra, 602. There were 1703 post offices and 598 telegraph stations. Telegraph lines (state), 15,176 kms., wires, 22,479.

ARMY. The colonial force, having an effective strength of 36,821 officers and men, of which 12,841 were Europeans, is maintained by voluntary recruiting. The various feudatory chiefs are under obligations to supply auxiliary troops, and a territorial militia of little value is also maintained.

FINANCE AND GOVERNMENT. The revenue in 1909 amounted to 197,237,032 florins, and the expenditure to 201,278,893; 1910 estimate, 220,834,112 and 226,894,203; 1912, 234,075,845 and 267,504,873. Revenue (1912) from tin sales, 26,422,704 florins; opium, 27,957,200; coffee, 1,187,226; quinine, 406,000; customs, 31,793,000; land tax, 22,329,000; salt tax, 14,309,500; railways, 27,033,000; posts and telegraphs, 5,766,400; various, 76,871,815. A governor-general (1913, A. W. F. Idenburg) administers the colony and exercises a limited legislative function. He has a council, partly legislative, partly advisory, of five members, nominated by the queen.

DUTCH GUIANA, or SURINAM. A Netherlands colony on the north coast of South America. Area, between 46,000 and 49,000 square miles; population, exclusive of negroes of the interior, 86,233. Sugar is the main article of production and export; other products are molasses, rum, cacao, coffee, corn, rice, bananas, and gold. The total imports in 1910 were valued at 7,424,698 guilders; exports, 8,345,447. Tonnage entered, 210,998. Estimated revenue (1911), 6,489,000 guilders; expenditure, 7,308,000. The colony is administered by a governor: W. D. H. (Baron) von Asbeck.

DUTCH WEST INDIES. See CURAÇAO and DUTCH GUIANA.

DYNAMO-ELECTRIC MACHINERY. Inventive genius had practically ceased to produce new types of dynamo-electric machinery, and manufacturers were concentrating their endeavors on the attachment of larger sizes and the minute refinement of the standard types. This was especially true in generating machines. In 1913 the maximum capacity of steam-turbine alternators was advanced from 25,000 kilowatts to 35,000 kilowatts, or 45,000 horse power. The latter machine was built for the Philadelphia Electric Company. This machine is of the horizontal type and operates at 1200 r.p.m. The over-all length is 65 feet and the combined weight of steam and electric elements is 600 tons. The 30,000 kilowatt turbo-units installed by the Interborough Rapid Transit Company in New York involve radical departures from previous types. Each unit consists of two separate 15,000 kilowatt elements, one operated by high pressure steam at 1500 r.p.m., and the other by low pressure steam at 750 r.p.m. The two generators are electrically coupled as a single unit. In the field of direct-current generators sizes have been attained which were recently considered impossible. A notable installation made by the Southern Aluminum Company comprises eleven units of 5200 kilowatts each, which develop 10,000 amperes at 520 volts for electrolytic purposes. Several types of alternating-current motors which have been known for several years have emerged into the field of practical utility. Among these are the polyphase series motor and the adjustable speed polyphase induction motor. The series motors have proven exceptionally well fitted for crane and hoisting work, a field in which alternating current motors have previously been at a serious disadvantage. Developments in transformer construction include the successful introduction of large units operated at 150,000 volts and units of 100,000 volts for outdoor operation.

DYSENTERY. See EMETINE HYDROCHLORATE.

EARTHQUAKES. The record for 1913 showed very few violent shocks, thus marking a continuance of the relatively quiescent conditions which were noted for the preceding two or three years. An interval of seismic repose more or less prolonged would naturally be in order after the series of world-shaking disturbances which occurred in the period from 1906 to 1910. According to the generally accepted view such earthquakes are the result of tectonic strains that accumulate gradually in the strata of the outer crustal zone or lithosphere and that find relief by intermittent movements when the strains are able to overcome the frictional resistance and inertia of the rock masses. The year, however, was not entirely devoid of incident. A rather heavy shock was felt on November 7 in the district around Abancay, Peru, 250 miles southeast of Lima. It was reported in the press as having destroyed several villages and involved the loss of 250 lives. A series of minor tremors were felt during the latter part of the year in Panama; the strongest was on October 1, and caused some damage at Los Santos, about 100 miles distant from the canal. It was followed by others on succeeding days, and again on November 17 further shocks were reported. Though of minor importance in themselves, they were the source of some apprehension in this country on account of their proximity to the canal, and brought up the question of whether heavier quakes might not take place which would inflict serious if not irreparable damage to the great dam and lock structures. There is no doubt that a shock of the first magnitude centred in the vicinity of the canal, that is, within a distance say of 100 miles, would entail serious effects upon the masonry, as has been demonstrated by the results wrought by the San Francisco, Messina, and other recent examples upon massive stonework. The solid inflexible structures of stone and cement are the ones that suffer most; steel and wood possess a certain accommodating flexibility to the wave-like movements that usually saves them from ruin. The possible danger to the canal from earthquakes was discussed by D. F. MacDonald, who as geologist to the Isthmian Canal commission has been in a position to acquire an intimate acquaintance with the matter. As a result of his studies he concludes that the waterway itself lies without the zone of violent earthquakes such as might cause serious damage to the locks or delicate mechanism of the canal. The geological structure of the Isthmus is devoid of features like recent mountain uplifts and fault-movements that mark lines of crustal adjustment on a large scale. Furthermore, the seismographic station at Ancon, established some time since, has registered no heavy disturbance of local origin, and the historical records for the last three centuries contain mention of only two such shocks in that time. An earthquake in 1631 destroyed many buildings in Panama. Another in 1882 damaged buildings and bridges and in places threw the railroad track out of alignment. Neither is considered to have been sufficiently forceful to work any considerable damage upon the canal structures.

EAST, SIR ALFRED. An American artist, died September 28, 1913. He was born in Kettering, England, in 1849. After his education at the Government School of Art at Glasgow and at the École des Beaux Arts in Paris, he became one of the best-known of English artists, and his works are to be found in many galleries all over the world. Among the most notable paintings are "Returning from Church," in the Carnegie art gallery; "A Passing Storm," in the Luxembourg, Paris; "A Haunt of Ancient Peace," in the National Gallery of Hungary; "London at Night," in the Milan National Gallery; "The Morning Moon," in the Art Institute at Chicago; and "The White Carnival," in the Brussels National Gallery. There are also numerous works in various municipal galleries in England. In 1906 Sir Alfred published a book on *The Art of Landscape Painting in Oil Color*. He made many visits to the United States, the last of which was in 1912, when he came for the purpose of attending the commencement of Yale University. He was an associate of the Royal Academy and was president of the Royal Society of British Artists. He was created a baronet in 1910.

EAST AFRICA PROTECTORATE. A British dependency between the Umba and the Juba rivers, extending from German East Africa to Italian Somaliland and Abyssinia, and inland to Uganda. It includes seven provinces and a semi-organized northwestern tract, with certain coastal territories leased from the sultan of Zanzibar, and covers an area estimated at 200,000 square miles, with an estimated population of 4,000,000 (administrative districts only, in 1910, 2,295,336). Largest town and chief port, Mombasa (about 30,000 inhabitants); capital, Nairobi (14,000). Kilindini has a fine harbor and is a trade centre. The coastal tribes are largely Mohammedan converts; the inland Bantus, Somalis, Gallas, etc., are pagans. The agricultural area was distributed in 1911 as follows: 4941 acres freehold, 603,811 lease. Of the total (608,752 acres), 601,382 acres were devoted to grazing. This is a notable departure from conditions obtaining in 1910, when 369,746 acres were grazed (cattle, sheep, and ostriches), and 19,852 were under crops. Imports in 1911-12, £1,330,437 (£1,000,346, including £66,382 for railway supplies, in 1910-11); exports, £1,016,898 (£962,911 in 1910-11); customs, £101,088 (£78,123); tonnage entered, 1,563,659 (1,364,740). Cotton was imported to the value of £394,715; grain, £100,903; provisions £76,878; railway, road, etc., materials, £66,382; sugar, £42,571. Grain export, £108,568; hides and skins, £73,250; copra, £28,055; rubber, £16,498; ivory, £15,649. Principal countries of origin and destination follow:

	Imps.	Exps.		Imps.	Exps.
U. K.	£549,470	£409,810	Neth'ds	£83,817	£10,169*
Br. cols.	272,740	104,740	Aus.-Hun.	29,270	14,237
U. S.	131,713	91,521	France	17,296	145,416
Germ'y	127,722	148,467	Other	118,409	92,538

* To Belgium.

The protectorate operates the Uganda (Mombasa-Victoria) Railway, whose length is 586 miles; cost of construction to March 31, 1912, £5,734,335. The Magada branch of the so-called Uganda Railway was under construction during 1913 and also the link from Port Bell to Kampala, in Uganda. Revenue, 1911-12, £729,078 (£609,585 in 1910-11); expenditure, £772,354 (£682,041); grant in aid, £115,000 (£130,000). A loan of £250,000 was advanced by the treasury for railway and harbor construction, etc.; in 1912 a further sum of £375,000 was loaned, and the grant-in-aid was suspended. Governor in 1913 (appointed in 1912), H. C. Belfield.

EATON, JOSEPH GILES. An admiral of the United States navy, retired, died March 8, 1913. He was born in Greenville, Ala., in 1847, and graduated from the United States Naval Academy in 1867, although he was appointed midshipman in 1863 and ensign in 1869. He served throughout the Civil War and at its close entered the naval academy, from which he graduated as noted above, in 1867. He served on various vessels, rising to the rank of lieutenant in 1871, lieutenant-commander in 1888, commander in 1896, and captain in 1901. During the Spanish-American War he commanded the hospital ship *Solace* and the U. S. S. *Resolute*. He had charge of the landing expedition at Hicacal Point in Guantanamo Bay on June 24, 1898. For gallantry under fire on this occasion he received a medal for bravery. He also took part in the bombardment of Manzanillo, on August 11, 1898. At the close of the Spanish-American War he was assigned to the Charlestown Navy Yard. He was retired with the rank of rear-admiral in 1905. The circumstances surrounding Admiral Eaton's death resulted in the arrest of his wife on the charge of having poisoned him.

EBERT, FRIEDRICH, successor to August Bebel. See SOCIALISM, *Germany*.

ECONOMIC ASSOCIATION, AMERICAN. See POLITICAL ECONOMY.

ECONOMICS, SOCIAL. See SOCIAL ECONOMICS.

ECUADOR. An equatorial republic of South America, on the Pacific coast. The capital is Quito.

AREA AND POPULATION. The eastern limits of the country, bounded by Colombia and Peru, are not definitely settled, but the generally-accepted area is about 299,600 square kilometers (115,676 square miles); including the Galápazos Islands, 307,243 square kilometers (118,627 square miles). The population is estimated at 1,500,000, though probably this figure is somewhat too large. The proportion of white inhabitants is small, the majority of the people being Indians and the mixed bloods numbering perhaps 400,000. Estimated population of the larger towns: Guayaquil, 80,000; Quito, 70,000; Cuenea, 40,000; Riobamba, 18,000.

Education. Illiteracy is common. The presidential message of August 10, 1913, stated the number of public primary schools at 1266, with an enrollment of 65,531. On these schools in 1912 the government expended 1,223,090 sucres. The government also supports 12 institutes for secondary education; they had in 1912 a total average attendance of only 1228. According to the presidential message of August 10, 1912. the total number of public, municipal, and private schools was 1590, with 2326 teachers and an enrollment of 98,413. Some opportunity for higher education is afforded by universities at Quito, Guayaquil, and Quenca and a law school at Loja. These institutions have over 600 students. The state religion is Roman Catholicism.

Industries and Commerce. Ecuador possesses valuable mineral resources, but they have not been exploited to any great extent. Aside from the Panama hat, manufactures have little commercial importance. Agriculture is the chief source of wealth, and cacao the leading crop. For this commodity Ecuador supplies a large part of the world's demand, though the proportion is smaller than formerly; the average Ecuadorean supply has not declined, but the output of other countries, notably Brazil, has in recent years greatly increased. Other products are coffee, rice, sugar-cane, tobacco, vegetable ivory, and rubber.

Imports and exports have been valued as follows, in thousands of sucres:

	1907	1908	1909	1910	1911	1912
Imports..	19,670	20,555	18,704	16,048	16,477	23,240
Exports..	22,907	26,559	24,879	27,333	28,062	26,116

The leading imports are cotton textiles, foodstuffs, hardware, and machinery. Principal exports in 1911, in thousands of sucres: Cacao, 21,057; vegetable ivory, 4768; Panama hats, 2584; rubber, 2066; coffee, 1536; gold, 1210; hides, 528. Trade by principal countries, in thousands of sucres:

	Imports		Exports	
	1911	1912	1911	1912
United States.......	4,629	5,325	8,399	6,555
United Kingdom....	5,124	5,853	2,343	2,048
Germany	3,232	4,900	4,616	4,396
France	1,081	1,470	9,844	7,321
Belgium	....	1,100	....	366
Italy	....	1,032	....	309
British colonies.....	....	1,641	....	....
Other	2,412	1,939	2,900	5,121
Total..............	16,477	23,240	28,062	26,116

Communications. Transportation facilities, both railways and wagon roads, are very inadequate. In 1912 about 370 miles of railway were reported in operation; of this mileage, 297 miles are comprised in the Guayaquil-Quito line. In July, 1909, construction was begun on a line from Bahía de Caraquez to Quito; about 50 miles were in operation in 1913, opening up an important cacao district. In July, 1910, a line from Manta to Santa Ana was begun; this was formally opened to traffic as far as Portoviejo, the capital of Manabí province, May 4, 1913. This line facilitates the exploitation of valuable timbers, gold-bearing fluvial sands, and groves of vegetable ivory. At the end of 1912 there were 5340 kilometers of telegraph lines, with 188 offices. Post offices at the same date, 151; the postal money-order system was introduced in the principal post offices in 1912, and the parcel-post service was greatly augmented.

Army. During 1912 there was little to be recorded about the army, which is organized on the basis of the law of January 15, 1902, demanding personal and compulsory service between the ages of 18 and 60 years, of which three years are spent with the colors and eleven years in reserve of the active army, twelve years with the national guard, and sixteen in the territorial army. The peace effective strength is stated at 3546 officers, of which 16 are generals, and about 18,000 enlisted men. The war strength is estimated at 100.000 men. The infantry consists of 13 battalions; cavalry, one regiment of seven squadrons; and artillery, three regiments of four batteries. The engineers form one battalion. The reserve battalions are maintained and organized for all branches of the service.

Finance. The standard of value is gold. The monetary unit is the sucre, par value 48.665 cents (one-tenth of a British sovereign). Revenue and expenditure in 1912 balanced at 19,972,800 sucres. The larger sources of revenue were import duties, 8,155,620 sucres, and export duties, 4,598,408. The larger disbursements: Public debt, 6,927,348 sucres; war and marine, 3,411,810; instruction, 1,844,696; interior and police, 1,561,325; finances, 1,080,069; public works, 1,003,255. Estimated revenue and expenditure for 1914 balance at 20,386,583 sucres. Public debt, 43,300,000 sucres.

Navy. The navy includes one destroyer, one torpedo boat, three launches, one transport, and an auxiliary vessel.

Government. According to the constitution the president is elected by direct vote for four years. He is assisted by a cabinet of five ministers. The congress consists of the Senate (32 members, elected for four years) and the Chamebr of Deputies (48 members, elected for two years). For the term beginning August 31, 1911, Emilio Estrada was inaugurated president in succession to Gen. Eloy Alfaro. Estrada died December 21, 1911, and, in accordance with the constitution, was succeeded by the president of the Senate, Carlos Freile Zaldumbide, as acting president. There quickly followed a revolutionary outbreak, headed apparently by friends of General Alfaro (who was killed) and marked by acts of infamous barbarity. The president of the Chamber of Deputies, Francisco Andrade Marín, succeeded to the position of acting president. On March 31, 1912, Gen. Leonidas Plaza, who was commander of the government forces and who had served as president in 1901-5, was elected president and on the 31st of the following August was inaugurated for a four-year term. The provinces are administered by governors appointed by the president.

HISTORY. Congress convened in regular session at Quito on August 10, and elected Sr. Alfredo Baquerizo Moreno president of the Senate, and Sr. Manuel Escudero speaker of the House. President Plaza's message to Congress commented on the generally satisfactory state of foreign relations. So far as the proposals to submit the disputes with Peru to arbitration were concerned, President Plaza declared that arbitration would be prejudicial to the national honor of his country; nevertheless he offered with somewhat questionable magnanimity to treat directly with the Peruvian government, and expressed the hope that "Peru would not reject the occasion which is now offered to bring to a solution this irritating question." The refusal of arbitration was probably motivated by a confident expectation of support from Chile in annoying Peru.

As in Costa Rica and in Colombia, the Pearson interests were negotiating in Ecuador for permission to exploit the petroleum resources. The concession which it was proposed to grant would have required the *concessionaires* to spend only $500,000 within the next ten years in return for very extensive privileges. The project was adversely criticised by *El Guante*, an influential journal of Guayaquil, and failed to receive the sanction of Congress. Contracts were authorized, however, for the sanitation of Guayaquil, "the sore spot" of the coast, and for railways from Quito to the province of Esmeraldes, from Huigra to Cuenca, and from Guayaquil to the coast. There was also a bill before Congress for the appropriation of $150,000 to construct a wireless system. An executive decree increased by 50 per cent. the excise taxes on foreign and domestic liquors.

A recrudescence of the revolutionary disorders of last year was threatened in the autumn when Col. Carlos Concha, irritated by the liberal tendencies of President Plaza, and anxious for power himself, set up the standard of revolt near the Esmeraldes River. The rebels were defeated in November, however, by government troops under Col. Valesco, and the rebel stronghold at Riobamba was captured. On December 15 Col. Concha and his associate, Gen. Jorge Martinez, captured the city of Esmeraldes, and subsequently Gen. Juan Navarro, minister of war, took command of an expedition to recapture that town from the rebels. In December the Ecuadorian government entertained at Quito a congress of students of Greater Colombia, attended by delegates from the three republics of Colombia, Venezuela, and Ecuador, which prior to 1830 had formed the single state of Greater Colombia.

EDUCATION. See section so entitled under various foreign countries.

EDUCATION IN GREAT BRITAIN. ELEMENTARY EDUCATION. The year 1913 marks a new era in English education; never has so much interest been shown in educational progress which has not been marred by bickerings on the religious question. This interest has been stimulated in the main by the speeches of Lord Haldane and Mr. Joseph Pease, the president of the board of education, both of whom profess to speak on behalf of the cabinet. It may be said that the question is at last being considered from the standpoint of the highest statesmanship. A feeling has at last been engendered that a great world-power can no longer continue in the world-competition with a system of education which is piecemeal and uncoördinated. As early as January 10, 1913, Lord Haldane opened the educational campaign with a speech in Manchester, which he has amplified and developed in numerous other speeches throughout the year. A number of speeches have also been made on different occasions by Mr. Pease, who deliberately defined the policy of the present government in his speech in Parliament on July 22, when introducing a bill to make additional grants to local educational authorities. In his Manchester speech Lord Haldane stated that his colleague in the cabinet recognized that "education was the next and most urgent of the great social problems," and in a speech delivered in March at the annual meeting of the National Union of Teachers at Weston-super-Mare he said, "A national system . . . must take cognizance of all the means by which education is provided in a country like this—the highest means, and lowest means, the university, the secondary school, the elementary school; and they must all be fitted into their place in one system." In the same spirit Mr. Pease in the House of Commons stated that the English national system of education is neither national nor a system, "but that measures were being prepared and a bill was promised to be introduced in 1914 for national and comprehensive reform." Briefly outlined the lines of future progress contemplated by the government are as follows: The local education authorities, which have responded magnificently to the educational demands laid upon them by the act of 1902 and succeeding measures such as the provision of meals and medical treatment, have almost reached the limits of their financial capacity. The point has been reached when the state must shoulder a larger share of the expenditure on education. Increased grants must be made, but the basis of appropriation will be changed with a view to equalizing educational opportunities everywhere, aiding poor districts. and rewarding meritorious effort. All branches of education must be placed under the purview of the national authority. The present range of school age must be extended at both ends. "Healthy motherhood, healthy infancy, and a healthy school life are progressive and indispensable steps to healthy citizenship in later years." Hence the physical side and medical inspection will receive increased attention; mothers will be trained; nursery schools will be provided. The compulsory age for elementary education will be raised universally to 14, and continuation schools, perhaps of a compulsory character, will be provided. The old Cockerton decision will be rescinded and elementary schools be permitted to give more advanced instruction in the last two years of school life. Above all, however, the opportunities for higher education must be increased, more secondary schools must be provided, easily accessible to all children of ability by means of a more extended scholarship scheme. Intermediate education, i.e., that between elementary school and university, must accordingly be made a vital part of the system, so that the educational career becomes a "broad highway" for ability. Further, the national system will require that the central authority take notice of the thousands of private schools and in some way impose certain educational standards. Lord Haldane also suggested an increased number of municipal or local universities. The scheme does not contemplate, however, a centralized, bureaucratic system, but through increased grants it will encourage local authorities to greater effort and will impose a national minimum. The religious question, it is hoped, will settle itself or, as Lord Haldane expressed it, the religious difficulty "we will take in our stride." In the meantime the bill introduced by Mr. Pease on the occasion of his speech for a grant in aid of loan charges and increased appropriation for medical inspection failed to become law.

EVENING SCHOOLS. There has been a complete reorganization of evening school systems of the London County Council. After a survey of the existing system published in a *Report of Eight Years of Technical Education and Continuation Schools*, it was felt that some remedy was required to improve the attendance, to link up the evening schools with higher institutions, and make the continuation schools more attractive to boys and girls leaving the elementary schools. The new evening schools, to be known as "institutes," will be more specialized and more coördinated, and will pay more attention to the humanities and the development of social life and activities. Advisory committees of employers will be appointed for each school. Only full or half time teachers will be appointed. The schools contemplated at present (250 in number) are: Junior and advanced commercial institutes to lead up to the London School of Economics and the City of London College; junior technical institutes leading up to the polytechnics, technical schools, and school of art; women's institutes providing domestic science and general courses; general institutes; non-vocational institutes for students over 18; institutes for the deaf; and special institutes for foreigners, policemen, railway and civil service employes. There will be standing conferences of heads of departments and responsible teachers or principals in junior and advanced institutes, there will be interchange of advice and consulation syllabuses. The new scheme thus includes the following considerations: (1) occupation of students: (2) existing institutions; (3) courses of instruction; (4) age of students; and (5) non-vocational subjects. Fees will be charged from which pupils who join immediately on leaving school will be exempted.

STATISTICS OF ELEMENTARY AND SECONDARY SCHOOLS. In 1911-12 there were in England and Wales 20,900 elementary schools with accommodations for 6,862,876 puplis, with 5,582,238 pupils on the school registers, and an average attendance of 4,962,797. There were employed 163,683 teachers (41,307 men, and 122,376 women). The total expenditure on public elementary schools by the Board of Education out of the parliamentary vote was £11,775,390 ($58,876,950). The number of secondary schools on the Board of Education's grant list was 995 with a total of 165,617 pupils (89,004 boys, 77,613 girls), and employing 10,080 teachers (5106 men, 4974 women); on the efficient list there were in addition 102 schools with 18,975 pupils (10,924 boys and 8051 girls); the number of teachers employed in these schools is not given. There are in addition numerous secondary schools which do not come under the control of the Board and for which there are no reliable statistics. The total expenditure on secondary schools by the Board of Education was £758,525 ($3,792,625).

TEACHERS' REGISTER. The teachers' register is at least likely to become a *fait accompli.* In accordance with the provisions of the order in council of February 29, 1912, and of the education (administrative provisions) act, 1907, the Teachers' Registration Council, an independent and not a state body, has issued the conditions for admission to the register The names of all teachers in every type of school will be put on the register in alphabetical order and their attainments, training, and experience will be given. To qualify for admission teachers must be 25 years of age, must pay a fee of one guinea, give evidence of having taken a course of training of at least one year in principles and methods and practice teaching under supervision; other additional qualifications are a university degree, the board of education certificate for elementary school teachers, a diploma of a university or technical institution, the certificate of an examining body, or other evidence of attainments in certain subjects for which a degree is not given. Until 1918 teachers with five years' teaching experience will be accepted. Registration is, of course, not compulsory, but in all probability employing authorities will ultimately regard it as a qualification for appointment. For the teaching profession the register means unity, solidarity, and absence of distinction or classification, a feature welcomed in particular by the elementary section.

EDUCATION IN THE UNITED STATES.

ATTENDANCE IN ELEMENTARY SCHOOLS. The report of the commissioner of education states that 18,521,022 pupils attended the elementary schools during the school year 1910-11. Of these 1,470,581 were in private schools. It is estimated that these children are distributed among the eight grades as follows:

Grades	Per cent.	Grades	Per cent.
First	24.9	Fifth	11.9
Second	14.9	Sixth	8.2
Third	14.5	Seventh	6.3
Fourth	14.0	Eighth	5.3

ATTENDANCE IN HIGH SCHOOLS. During the school year 1911-12 there were 1,105,360 students in public and 141,467 students in private high schools. These were distributed among the four years of the high school as follows:

Year	Percentage	
	Public schools	Private schools
First	41.73	34.85
Second	27.08	26.84
Third	18.21	20.90
Fourth	12.98	17.41

COST OF STATE COMMON SCHOOLS. The total cost of public elementary and high schools for the school year 110-11 was $446,726,929. This was an amount equal to $4.76 for each inhabitant of the country. Nearly sixty per cent. of the expenditures is for teachers' salaries. This amount represents an average annual salary of $446.40 per teacher. There were permanent school funds amounting to $252,172,335 that yielded 3.3 per cent. of the school revenue, while 74 per cent. was raised by local and 15.3 per cent. by State taxes. The estimated value of the property used for school purposes was $1,221,695,730.

EDUCATIONAL INVESTIGATION AND INQUIRIES. Among the more noteworthy educational investigations of 1913 were the following:

a. New York City. The School Inquiry Conducted by the Board of Estimate and Apportionment. Although this inquiry was begun in 1911 with Prof. Paul H. Hanus of Harvard University as director and continued through 1912, the findings were not made public until they appeared in a dozen or more interim and supplementary reports during the early months of 1913. The importance of the city and the high professional standing of those who were employed to conduct the investigation served to make this the most thoroughly discussed recent event in education. The most concise summary of the conclusions reached is found in the following paragraph taken from Professor Hanus's "Conclusions of the report as a whole":

"It is clear that in spite of the progress the public-school system of New York City has made since the consolidation, it is seriously defective. It needs thorough reorganization in respect to its administration by the board of education and the supervisory staff; and in respect to its general system of supervision. The board of education needs a clear conception of its functions, and should come to close quarters with its work. The board of superintendents fulfills no useful function and should be abolished. In the general system of supervision, helpful coöperation under leadership should replace bureaucratic control. The board of examiners is decidedly efficient, but needs reorganization to improve and maintain its efficiency. The courses of study for elementary schools and for high schools needs thoroughgoing revision, and flexibility should replace rigidity in their administration. The quality of the teaching in the elementary schools, at least, is in general not good, though sometimes good to excellent. The provisions for the discovery, segregation, and appropriate treatment of the mentally defective children are quite inadequate, and need immediate attention. The compulsory attendance service is inefficient; it emphasizes police functions rather than preventative measures, and the staff needs reorganization on a functional basis. The recognized advantages of intermediate schools in relieving congestion have not led to the further establishment of such schools, and no attempt has been made to realize the exceptional educational opportunities these schools afford; promotions and non-promotions are not studied so as to yield a real basis for a maximum rate of promotion; part time should be abolished; the estimated need of teachers for elementary schools and for high schools is not based on indisputable and well-organized data. The provision for industrial education is so meagre as to be almost negligible; neither industrial nor commercial education is so maintained as to secure the necessary effective coöperation of industry and commerce, and coöperative and continuation schools are wholly absent. Habitual self-scrutiny and an appeal to well-conducted investigations and experiments to secure the necessary data to confirm or refute educational opinion and furnish the regulative for all the activities of the school system and for its adequate financial support are lacking."

b. Ohio School Inquiry. The 1913 General Assembly of Ohio provided for a commission of three persons to make an inquiry into school conditions in Ohio as found in the rural schools, the normal schools, and the town and city schools. Ten thousand dollars was appropriated to pay the expenses of the investigation. Dr. Horace L. Brittain of the New York Bureau of Municipal Research was made the director of the investigation. The attempt has been made to have this a coöperative effort by having a large part of the field work done by those in the State whose interest led them to volunteer to visit schools. Three hundred and forty-one one-room schools were thus inspected.

Not all of the recommendations of this commission have been published, but such as have emphasize the need of a more adequate system of keeping school records and reporting to the State superintendent. They provide for the reduction of the types of teacher's certificates from fifty-eight to thirty-two, and the actual testing of the candidate's teaching ability as a part of every examination for a certificate. They urge supervision for all the schools of the State. They provide for a deputy State superintendent of public instruction and for a bureau of efficiency in the office of the State superintendent.

c. Portland, Ore. Survey of the Public School System of District No. 1, Multnomah County, Ore. At a taxpayers' meeting held in Portland on December 27, 1912, the following resolutions were adopted:

"Whereas, the average daily attendance at the public schools of this district has increased from 10,387 in 1902, to 23,712 in 1912, and the annual disbursements have increased during the same period from $420,879.61 to $2,490,477.28; and

"Whereas, it is of the utmost importance that the public schools should be kept at the highest point of efficiency, it is hereby declared to be the sense of this meeting that a full and complete survey be made of the public school system of this district, comprising:

1. The location, type, character, and condition of existing school houses, and the estimated cost and type of future buildings;
2. Of the organization and methods of administration;
3. Of the form and manner of instruction;
4. The courses of study and the quality of the text-books;
5. The extent and need of playgrounds and gymnasiums;
6. The development of domestic science, manual training, trade, agricultural and horticultural schools.
7. The salaries of teachers and other employes.
8. The method and system of accounting.
9. The form of organization, and the examination of the school laws of the State, as applied to this district.
10. Of the average cost per pupil in comparison with other cities and
11. Of the scientific method of raising the required revenue, either by direct taxation or the issuance of bonds, or both."

A committee of five was appointed with authority "to make a full and complete survey of every phase of the public school system of this district, said committee to serve without pay, but they are authorized and empowered to employ such expert investigators as may in their judgment seem necessary." Seven thousand five hundred dollars was appropriated for the expense of the survey. Dr. Ellwood P. Cubberly, professor of education, Leland Stanford Jr. University, was secured as director of the survey, and he employed several assistants.

The report, which was submitted to the commission November 1, 1913, while praising some features of the school system, criticises many others, and suggests the remedies. In particular it states that many of the school buildings are located on noisy, dusty streets, that some of them are too high, and others not fireproof. It estimates that the city requires annually sixty new class rooms to accommodate the increasing number of pupils, and that the cost of these rooms in fireproof construction will be $420,000. It criticises the board of directors on the ground that it "tries to manage too much and too many details." The instruction in the first three grades is pronounced good, while elsewhere it is good in some rooms. Much of the poor teaching in the elementary school is traced to the curriculum, which is characterized as "vivisected into fifty-four dead parts." The need of additional playgrounds, gymnasiums, open-air schools, medical inspection, and other health provisions is urged. In addition to increasing the offering in manual training and domestic science, the report recommends that an agricultural high school be organized and located on a site of not less than fifty acres; that intermediate schools be provided; that ungraded classes be established in connection with each elementary school; and that there be four or five special or truant schools, two special art schools, two or more neighborhood schools and a school for the instruction of school janitors. It also recommends that the vacation and night school systems to be enlarged, extended, and changed somewhat in type, and that the school day be lengthened and Saturday forenoon included for vocational work in the grammar grades and above. The salaries of the Portland teachers compare favorably with those paid elsewhere in the West, but they are not based on merit or efficiency. "The costs of elementary education in Portland are about what other Western cities average, while the costs of secondary education are lower."

d. Vermont Educational Inquiry. An educational commission was constituted by an act of the Vermont legislature, approved November 19, 1912. The following quotation from the act defines the duties of the commission:

"Whereas, a doubt has arisen in the minds of many of those most intimately related to the secondary and elementary schools of the State as to the efficiency of our common school system, and

"Whereas, a similar doubt prevails among many friends of higher education regarding the adequacy of the return which the State is getting from its appropriations in aid thereof, and

"Whereas, his excellency, the governor, has recommended in a recent message the appointment of a commission to investigate and report on these matters:

"Therefore, it is hereby

"Resolved by the Senate and the House of Representatives, that a commission of nine persons, at least two of whom shall be experts in or engaged in educational work, shall be appointed by the governor to inquire into the entire educational system and condition of the State. This commission shall report at the earliest possible date on the several rights, duties, and obligations of the University of Vermont and the State Agricultural College, Middlebury College, and Norwich University, with such recommendations as will prevent unnecessary duplication and consequent financial waste.

"Resolved, That as soon as practicable after reporting on the institutions of higher learning hereinbefore referred to, the said commission shall recommend, by bill or otherwise, such reorganization of our public elementary and secondary schools, in adjustment to the entire educational system of the State, as will promote the ends of unity, harmony, economy, and efficiency."

The members of the commission were to serve without pay except for their necessary expenses. On February 24, 1913, the commission invited the Carnegie Foundation for the Advancement of Teaching to undertake the necessary investigation and they accepted.

The commission has reported the following recommendations:

"1. The recognition by the State of the reorganization of elementary and secondary education, including vocational training, as its immediate and supreme duty.

"2. The organization of the office of a commissioner of education upon a basis competent to furnish expert supervision for the public school system. This involves a small lay board serving without salary, and salaries for educational experts of a character to secure the ablest men and women.

"3. The problem of the revision of the course of study, the establishment of agencies for training teachers, and other administrative details to be worked out by this board and its experts.

"4. The State Agricultural College to receive a larger proportion of the generous annual appropriation of the State from the Federal government and to be developed along lines calculated to make fruitful connection between the Agricultural College and the industries of farming, dairying, gardening, stock- and poultry-raising, and fruit culture.

"5. That subsidies to higher education cease, the colleges being given a reasonable time in which to rearrange their budgets."

MEASUREMENT OF RESULTS IN EDUCATION. Among the results that have come from the severe criticisms that the public education has received is a fuller appreciation of the need of definite standards for the measurement of the efficiency of the schools. Until recently there was almost unanimous belief that education was concerned with such subtle processes that it was impossible to measure the results. The criticisms have implied the possibility of measuring the quality of achievement, while the necessity of changing school procedure is forcing school officers to search for definite standards.

The National Council of Education at its meeting in Philadelphia in February, 1913, devoted a large proportion of the time to the consideration of standards. Its committee presented a report on "Standards and Tests for Measuring the Efficiency of Schools and Systems of Schools." The report which has been published as *Bulletin, 1913, No. 13*, by the United States Bureau of Education summarizes the work that has been done in the way of standardizing school subjects and features of organization, and ends with a recommendation that a committee be appointed with the following functions:

"1. It should offer encouragement, expert advice, and opportunity for publication to those engaged in scientific work in the direction of the derivation of scales of measurement, in the application of scales or units to actual school situations, or in the establishment in any other manner of standards in relation to public education.

"2. It should offer expert advice with respect to the nature and scope of surveys, investigations, or inquiries to be undertaken in any part of the United States.

"3. It should offer to members of our profession engaged in administrative work the opportunity to secure a scientific investigation of their systems of schools under the direction of professional experts. As the situation is at present, we have the anomaly which permits a politician, an interested book-publishing firm, or a personal enemy of the chief administrative officer of a school system to attempt to secure the removal of such an officer without any adequate measure of the efficiency of the school system or the accomplishment of the man whose work is called in question. The establishment of a body of professional experts would in time render such action impossible."

The recommendations of the committee were accepted by the council and a committee of fifteen members was appointed.

MONTESSORI METHOD. The Montessori method of teaching exerted increased influence during 1913. A group of prominent educators and others formed the Montessori Educational Association with headquarters in Washington. Mrs. Alexander Graham Bell is its president and Miss Anne E. George its educational director. During the spring months Dr. Montessori conducted a teachers' institute in Rome. Among her students were sixty Americans. In December she made a brief visit to this country and delivered lectures in a few of the larger cities, being everywhere received with great enthusiasm.

PUBLIC SCHOOL ADMINISTRATION. The increasing importance of State education departments has been emphasized during the year. The most significant single event was the election of Dr. John H. Finley, president of the College of the City of New York, to the position of commissioner of education for the State of New York, a position that up to the time of his death, April 27, 1913, Dr. Andrew S. Draper had held. It is noteworthy that in each instance the regents have been able to secure as commissioner the president of an important institution of higher learning, for Dr. Draper resigned the presidency of the University of Illinois to become the commissioner when the position was created in 1904.

Maine and Iowa each increased the salaries of the State superintendent to $4000. Several States, notably Idaho and North Dakota, have enlarged the authority of the departments of education, while the Vermont educational commission recommends a large increase in the responsibilities and salary of the State superintendent.

In the field of city school administration, events in the two largest cities in the country have focused attention upon the question of the proper relationship between the superintendent and the board of education Early in the year the legislature of New York passed amendments to the charter of New York City that gave to the board of education authority and initiative that had belonged to the board of superintendents. One amendment authorized the board of education "to change the grades of all schools" and to "adopt and modify courses of study for all schools." The second amendment gave them authority to appoint three additional district superintendents without receiving recommendations from the board of superintendents. The third amendment provided that "the president of the board shall have power to designate any member of the supervising or teaching staff to inspect and report upon any subject of which the board has cognizance or over which it has legal control." When the amendments came before the governor, they were so bitterly opposed by many educational authorities that he vetoed all but the first, and this also received the approval of the mayor of New York.

The superintendent of the Chicago schools, Mrs. Ella Flagg Young, resigned "for the purpose of maintaining harmony in the administration of the Chicago schools." Various statements of the conditions that led to this act make it evident that the superintendent considered that some members of the board of education were dealing with matters that were outside their proper sphere. The board by a vote of 14 to 1 declined to accept her resignation and Mrs. Young withdrew it and resumed her duties. In December Mrs. Young was a candidate for reëlection, but she was defeated and her successor was elected. This action created such a storm of protests, particularly on the part of the women of the city, that the mayor removed several members of the board and the new body reinstated Mrs. Young.

The question of what constitutes the proper functions of the superintendents and of the city boards of education is still in controversy. The opposing views are very clearly stated in the following quotations, the first of which is taken from the report of the survey of the public school system of Portland, Ore.:

"At the head of the school department is the superintendent of schools. His chief function will be the supervision of instruction, but with final jurisdiction, subject only to the board of school directors, in the case of other matters than instruction. He should be made the real head and leader of the school system in fact, as well as in name, and full responsibility for the successful conduct of all departments of the educational service should be placed squarely on his shoulders. . . .

"To the superintendent of schools should be given final control of the course of study in the schools; the selection of text-books and supplementary books to carry out the course of study; the selection, promotion, and dismissal of teachers; the assignment of teachers and principals to their duties; the making of rules and regulations relating to the conduct of the schools; and the general control of the educational work of the school system. . . .

"As long as the board has confidence in the judgment and ability of the superintendent he should be supported in his acts; when they cease to have such, they should call for his resignation. They should not assume authority in educational matters themselves, nor permit him to evade his proper responsibility by putting it off onto them."

A very different view is indicated in the following extract from a report to the New York board of education by its president, July 9, 1913:

"When you began your work of the present year there was existent in this building a time-honored tradition that a board of education should not presume to deal first-hand with education itself, but should be confined to matters of finance, equipment, and perfunctory voting upon measures to be perfected by those whom it was a usage to designate as educational experts. Some years of adherence to this theory had built up a system so unsatisfactory as to result in a compulsory investigation of the schools and in published declaration of their formalism, rigidity, and obsolescence. In a review of the investigators' findings, the head of the commission concluded the service of education in this city to be seriously defective and the board of education at not sufficiently close quarters with its work. But several months before the publication of these criticisms, you, from your own experience and from your own desire of progress, had anticipated them by coöperative action in taking up, considering, and passing upon vital questions directly concerned not only with sites, buildings, and supplies, but with the actual training of children.

"In accordance with this policy you have provided for a special committee to represent you in the preliminary steps leading to the nomination of district superintendents. Your high-school committee has performed a similar service affecting the nomination of high-school principals. In both of these changes you have realized that your responsibility to the city is not fulfilled by a perfunctory vote, but that, as you are held ultimately responsible, your judgment should find the freest exercise in important matters of this kind and early enough in the proceedings to escape embarrassment through desire to avoid personal disparagement of candidates nominated without consulting you."

School Hygiene. The most important outcome of the efforts to trace the causes of educational inefficiency is the increased attention that is now given to hygiene. Various investigations have proved that a large proportion of school children do not remain in school any longer than the compulsory attendance laws require, and that even a larger number are retarded by having to repeat work. Not all of the causes of this waste have been determined, but more than four hundred important cities now regard health as such a large factor that they support well-organized departments for the supervision of the children's health. The fourth International Congress of School Hygiene, which was held in Buffalo, August 25-30, 1913, gave an added impetus to the movement in this country. The following brief descriptions of the departments included in school hygiene serve to convey some notion of the scope of the work undertaken:

a. Medical Inspection. An examination of 121,832 school children of Boston showed that 69,333 had physical defects. This proportion is not different from that found in other places where examinations have been made. The more important duties of the department of medical inspection are: (1) Detection and correction of physical defects; (2) prevention, detection, and exclusion of communicable diseases; (3) sanitary inspection of school buildings.

b. School Nurses. Medical inspection without visiting nurses has not proven effective, because "the best of medical inspection succeeds only in sending the child home." The school nurse, however, is able to follow up the child and see that he receives the proper treatment. She becomes not only an ideal sanitary inspector, but also an advisory influence in the homes. One school nurse is able to look after more than a thousand school children.

c. Oral Hygiene. Examinations have shown that from 70 to 90 per cent. of all children in the public schools have faulty teeth. The regular medical inspectors often examine the children's teeth. A number of the larger cities, however, have dental inspectors, and support free or partially free dental clinics.

d. Open Air Classes. It is estimated that more than one hundred open air classes are now operated in this country. Such classes were first used for tubercular children, but all the tests that have been made seem to indicate that they also benefit healthy children.

e. School Feeding. The claim is made that 10 per cent. of city children suffer from malnutrition. The purpose of school feeding is to relieve chronic underfeeding rather than acute hunger. The American Home Economics Association found that school feeding began in Germany in 1790; France, 1849; Great Britain, 1866; and in the United States in 1895. At least seventy American cities now furnish free or partially free lunches in their regular elementary schools. Lunches are served in all the open air classes.

f. Psychological Clinics. There are no reliable data regarding the proportion of school children who are so exceptional as to require special treatment. Medical inspectors generally deal with this matter, but since 1896 forty psychological clinics for the diagnoses and treatment of the mentally deficient have been established.

g. Sex Hygiene. The most recent subject to be classed with school hygiene is sex education or sex hygiene. This movement has not progressed beyond the stage of propaganda. The plan for teaching the subject proposed by the American Federation for Sex Hygiene is stated briefly as follows: The mothers of children under six years are instructed in the proper care of the child's body, and how to best answer his questions regarding the origin of human life. Between the ages of six and twelve children should receive instruction to protect them from forming injurious sexual habits, and receive truthful and delicate answers to their questions as to the origin of the individual human life. A carefully-planned series of lessons on reproduction in plants and in animals below the mammals forms a part of the course in nature study. Between the ages of twelve and sixteen children are led to the generalization that animal life comes from *the ovum*. Fertilization in mammals is taught in a way that leads up to reproduction in man. The simplest facts in regard to heredity are presented, and there is specific instruction regarding sexual morality. There is also systematic instruction in practical ethics. Those between the ages of sixteen and maturity are given more thorough instruction in heredity, and in the bearing of sexual morality and immorality on future generations, and specific instruction as to the character and the dangers of venereal diseases. In all cases it is proposed to make the lessons form a natural part of the courses in nature study, biology, hygiene, and ethics.

VOCATIONAL EDUCATION. The tendency in vocational education is toward increased conservatism. Many of the State legislatures considered the question of vocational training and two of them—New Jersey and Indiana—authorized complete systems. Several other States, notably North Carolina, Washington, and Nebraska provided for some phases of industrial training.

The means for establishing industrial or trade schools have in several instances come before the school authorities knew how to use them. Some of these officials have traveled from one end of the country to the other in search of suggestions that they might adopt. Others while not failing to inspect what has been accomplished elsewhere, have set about making a very careful investigation of the industrial and social conditions of their cities. The latter has been the policy in New Orleans. This city has at its disposal a very large sum to be used in establishing a trade school. The school officials have delayed the establishment of the school until the newly-formed department of educational research can make a comprehensive survey of the industrial and social needs of the city.

See also section EDUCATION under various States of the United States.

EDUCATION, VOCATIONAL. See EDUCATION IN THE UNITED STATES.

EFFICIENCY, MUNICIPAL. See MUNICIPAL GOVERNMENT.

EGYPT. A semi-independent tributary state of the Ottoman Empire, occupied by British troops and virtually under British control. Capital, Cairo. The area is given as 363,181 sq. miles, exclusive of the Sudan; of this area only 12,013 sq. miles are settled and under cultivation. Total population (1907), 11,189,978; this is exclusive of nomad Bedouins, estimated to number over 97,000. Of this total, 10,366,046 were Egyptians; 735,012 settled Bedouins; 65,162 Nubians; and 221,139 foreigners (Turks, Greeks, Italians, British, etc.). Population of Cairo, 654,476; Alexandria, 332,246; Tantah, 54,437; Port Saïd, 49,884; Mehalla el Kubra, 47,955; Mansura, 40,279; Damanhur, 38,752; Zagazig, 34,999. In upper Egypt are Assiut, with 39,442 inhabitants, and Medinet el Fayum, 37,320.

EDUCATION. In furtherance of the policy of coöperation between the ministry of education and the provincial councils which has been in process of development during the three years last past, the provincial councils are taking over all elementary and primary schools and primary normal schools, and turning over to the ministry of education all secondary institutions. The ministry retains the right of inspection of all schools. In 1912 there were under direct control of the ministry of education 208 establishments, with 29,047 pupils, of whom 5921 were girls; under inspection by the ministry, 3996, with 227,588 pupils, of whom 21,555 were girls. Agricultural schools have increased from 26 with 4065 students in 1911 to 32 with 4591 in 1912. Plans are perfecting for further extension. Technical schools (1912), 23 (21 in 1911), with 3177 students (2953). There are commercial, teachers' training, medical, and art schools.

AGRICULTURE. To quote from Lord Kitchener's report, dated Cairo, March 22, 1913, "Egypt, as an agricultural country with no industries of importance, depends on the export of one staple product, cotton, for her imports, of manufactures, of fuel, and of a portion of her food-stuffs, as well as for the service of her foreign debt. . . . Equable climatic conditions, a perennial water supply, and the extraordinary fertility of the soil combine to insure regular and abundant crops. . . . It will therefore be readily realized to how great an extent the economic fortunes of the country depend on the price of cotton. It is, in fact, this partial dependence of the purchasing power of Egypt, as represented by her exports, on the fluctuations in price of a single commodity that renders her peculiarly liable to alternations of expansion and depression. We must bear in mind, therefore, that the level of prosperity which the country now has reached reposes, in a very considerable measure, on the maintenance of the price of cotton which has prevailed during the past few years. . . . Owing to the low Nile in 1912, the supply of water during the year was, with very careful distribution, only just sufficient for the summer crops. In some places the cotton may have suffered slightly from want of water, but generally the crop was a good one and the amount, estimated at 7,500,000 kantars, is a satisfactory yield, only equaled by the crop of 1910. . . . Cotton-worm appeared freely in the early part of the season, but the activity of the government . . . and the energetic conduct of the campaign against the pest prevented it from causing any great damage to the crop."

Areas in 1912 (in feddans) under main crops and estimated yield are shown below (L. E., Lower Egypt; U. E., Upper Egypt; S. G., Suez governate):

	L. E.	U. E.	S.G.	Total A.	Yield
Cotton *...	1,346,236	375,561	18	1,721,815	7,500,000
Wheat †...	672,008	610,702	225	1,282,935	5,606,426
Barley †...	162,768	201,216	67	364,051	2,056,888
Rice †......	211,083	14,928	..	226,011	1,110,571
Corn, etc.†.	1,170,344	662,403	321	1,833,068	13,361,345
Sugar *....	2,380	47,622	27	50,029	21,250,000

* Yield in kantars. † Yield in ardebs; the ardeb varies, that of wheat being 150 kilograms, barley 120, unhusked rice 291, corn 140.

The area under cotton shows an increase over 1911 of 10,574 feddans, all in Upper Egypt. The establishment of halakas (cotton markets) throughout the cotton-growing districts has dealt a blow to fraudulent practices on the part of merchants in their traffic with the fellaheen.

The five-feddan law enacted in 1912 is designed to protect the small cultivator against usury and the loss of his farm and utensils for debt. The cantonal justice law, by establishing local justices in rural communities to settle local disagreements, register acts and deeds, decide claims, rectify boundaries, etc., will protect the poor and ignorant against fraud and forgery.

For several years the number of cattle and buffalo has shown an annual decrease, and Egypt is obliged to import animals for consumption and labor; this importation without proper inspection has led to numerous outbreaks of cattle plague.

Irrigation. The last stone of the heightened Assuan dam was laid December 23, 1912, and the reservoir was subsequently filled. On this subject Lord Kitchener says: "The summer demand for water is met in three ways: (1) By the water flowing down the river itself; (2) by the Assuan reservoir; and (3) by the relatively small volume of water stored by the temporary earthen dams annually constructed on the two branches of the Nile near the sea." Total irrigated land under cultivation in 1910, 2,160,000 feddans, of which 246,000 feddans were under rice. "Rice takes double the quantity of water required by cotton per feddan. With the new reservoir, combined with a normal river, the larger quantities of water available will provide for an increase of 14 per cent. of the present cultivated area, equivalent to 335,000 feddans under summer crops. . . . The first two of the delta drainage schemes contemplated by the government . . . are now in hand, and will . . . permit of regular cultivation on 300,000 feddans of waste and partially waste land. . . . We have also to consider the very important question of protecting Egypt from the disastrous effect of abnormally high floods. . . . Any extensive inundation would cause . . . [great] damage and loss of life. To prevent such a catastrophe and to provide at the same time the necessary water for extended areas of cultivation in years of low Niles it is proposed to erect a dam on the White Nile about 40 miles above Khartoum, so that in case of dangerously high floods the White Nile supply may be temporarily cut off and stored for use in Egypt in the following summer."

Commerce. The value of imports declined from £E27,227,118 in 1911 to £E25,907,759 in 1912 (£E23,553,000 in 1910). The value of exports increased from £E28,598,991 in 1911 to £E34,574,321 in 1912 (£E28,944,000 in 1910). Imports of flour from Italy and the Balkan States were influenced by the wars in Tripoli and the Balkans, with the result that increased quantities came from India. The United States received large orders for coal as a result of the English coal strike. A decline in textiles and apparel points to diminished purchasing power on the part of the fellaheen. Specie import, 1912, £E11,546,439; export, £E7,476,282.

The high prices prevailing for cotton in 1912 resulted in a larger export of the new crop than in 1911—£E27,529,277 (£E22,988,200 in 1911); the United Kingdom taking £E12,572,150 (£E11,016,250 in 1911). The increased export of raw cotton to Japan amounted to 60 per cent. Export of cotton seed, £E4,086,950 (£E3,039,000 in 1911). The onion export was valued at £E384,800 (£E313,900 in 1911). In 1912 150,404,000 eggs (£E180,500) were exported—96,765,000—(£E116,250) in 1911; of crude petroleum, 14,400 tons; of phosphates, 52,100 tons.

The United Kingdom contributed imports valued at £E7,990,658 (£E8,557,296 in 1911) and received exports valued at £E16,022,318 (£E13,958,058 in 1911); Turkey, £E2,753,723 imports; France, £E2,411,425 and £E2,707,000; Austria-Hungary, £E1,679,831 and £E1,431,150; Germany, £E1,421,180 and £E3,885,900; British Far Eastern possessions, £E1,314,316 and £E122,704; Italy, £E1,242,729 and £E948,890; Belgium, £E1,102,711 imports; United States, £E403,528 and £E4,120,900; Russia, £E2,056,302 exports; Switzerland, £E1,008,900 exports.

Tobacco. In 1911 the import of leaf tobacco was 7,957,550 kilograms; in 1912, 8,205,659—an increase of 3.1 per cent. The import of Greek tobacco rose from 2,600,000 kilos in 1911 to 3,008,000 in 1912, constituting Greece instead of Turkey the main country of import. The import from Bosnia and the Herzegovina suffered a 50 per cent. decline. From Russia came 1,511,000 kilos (1,027,000 in 1911). Stocks of tobacco in bond, 184,000 bales.

Communications. The total length of Egyptian state railways January 1, 1913, was 1512 miles. Capital expenditure in 1912, about £E452,000. The year saw the completion of the new bridges at Mansura and Port Saïd and the opening of a new station at Shellal. The bridge at Assiut and the two under the Zifta-Zagazig line progressed satisfactorily, as did the Alexandria station. The rails of the Zifta-Zagazig line were to be laid by June, 1913; plans for the Menuf-Kafr-el-Zayat line are completed and materials ordered. Passengers carried (1912), 28,776,280; freight, 6,863,147 tons; gross receipts, £E3,913,700; gross expenditure, £E2,276,000. In addition to government lines there are 788 miles of light railways exploited by public companies. The principal railway construction work in Egypt during the year was the line from Bielah to Baltin in the Delta. There were in 1912, 1715 post offices and stations; December 31, 1912, there were 4233 miles of telegraph lines, with 13,620 miles of wire.

At Alexandria, the principal port, 1927 vessels, of 3,479,146 tons, entered in 1912. The traffic through Port Saïd amounted to about half that through Alexandria, the remainder going *via* Suez.

Army. The Egyptian army is formed from selected recruits, as all male inhabitants are liable under the law for service, six years in the army, five years in the police, and four years reserve. The chief command is vested in the sirdar and governor-general of the Sudan, in 1913, as in the previous year, Lieut.-Gen. Sir Reginald Wingate. There were attached to the native army 188 British officers and a strength of about 18,000 was maintained divided as follows: Cavalry, 800; camel corps, 600; artillery, 1250; infantry, 10,000. The bulk of this force was used for garrison duty in the Sudan, and it was proposed to raise an equatorial battalion for service in the extreme southern provinces. In addition, a British army maintained in Egypt a force toward whose support the Egyptian government contributed. This force in 1913 included soldiers of all arms and, with the detachments in Cyprus, amounted to 6466 officers and men.

FINANCE. The revenue for 1912 amounted to £E17,515,000 (estimate, £E15,900,000); the expenditure to £E15,470,000 (estimate, £E15,400,000). According to Sir Paul Harvey, the financial outlook is favorable: "The revenue returns of 1912 show an aggregate expansion of £E722,000 over the preceding year, about £E100,000 of which, however, does not represent real increase in revenue, being counterbalanced by expenditure on the other side of the account. . . . The surplus on the ordinary budget of 1912 is £E2,045,000, and the reserve fund shows, on balance, an increase of £E277,000. . . . It has been found possible for 1913 entirely to do away with the subvention for civil expenditure in the Sudan. . . . On the other hand, the Egyptian customs will no longer take the duties on goods imported through Egypt into the Sudan." The military subvention, which properly belongs under the head of Egyptian military expenditure, will in future be so classed.

The 1913 budget estimates the revenue at £E16,130,000 and the expenditure at £E15,630,000. Estimated receipts from direct taxes, £E5,609,000; railways, £E3,957,000; customs, £E2,119,000; judicial fees, £E1,745,000; tobacco, £E1,714,000. Estimated expenditure for the various ministries, provincial administration, etc., £E5,630,847; railways, posts, and telegraphs, £E2,690,746; service of the debt, £E3,933,411; public security, £E1,048,664; tribute, £E665,041; pensions, £E560,000; khedival civil list, £E280,996; etc.

The total outstanding capital of the debt December 31, 1911, was £94,621,660; charge on account of interest and sinking fund, £E3,557,000; paid off during the year, £271,980; resulting in a total capital, December 31, 1912, of £94,349,680 and an annual charge of £E3,552,000.

Depositors in the savings bank increased by 147,352, the total number at the close of 1912 being 265,003 (including 127,927 rural depositors), of whom 234,904 were Egyptians. Post office savings banks have been extended all over the country.

GOVERNMENT, ETC. Abbas (II.) Hilmi was in 1913 the reigning khedive. The real ruler of Egypt is Field Marshal Viscount Kitchener of Khartoum, British agent, counsul-general, and minister plenipotentiary. Financial adviser, Sir Paul Harvey.

Plague decreased from 1656 cases in 1911 to 884 in 1912; pneumonic cases 178 in 1911 and 114 in 1912; deaths, 1041 and 441; mortality rate per cent., 62.9 and 49.9. The percentage of infant mortality continues extremely high. Mr. Alexander Coote made suggestions resulting in the establishment of international societies for suppression of the white slave traffic, which increases rather than decreases.

The mixed court of appeals loses by resignation two eminent counselors, Antoine de Korizmics (1886), succeeded by Bela de Zoltan, and Casimir Prunières (1885), succeeded by Francis Laloë. In addition to the cantonal law, the government has inaugurated other legislative intervention for the protection of the fellaheen, such as that raising the rate of interest on savings bank deposits and providing increased facilities for making deposits; the insertion in the penal code of provisions for the punishment of usury; the grant of small holdings (not over five feddans) of reclaimed lands on easy terms to small cultivators; the institution of local commissions for ascertaining the amount of indebtedness and means of relief without recourse to usurers, one of the modern and most mischievous of the plagues of Egypt.

HISTORY

THE NEW LEGISLATIVE ASSEMBLY. A constitutional reorganization in the direction of more representative government made the year 1913 a memorable one in Egyptian history. Under the system inaugurated in 1883 a general assembly and legislative council were nominally the organs of popular sentiment; but the General Assembly was summoned only at intervals, often only once in two years, and then only to authorize the imposition of some new direct, personal, or land tax or to approve a public loan. The Legislative Council, of whose 30 members only 16 were elected, met regularly every winter, but possessed only advisory powers, and was frequently criticised for its indifference to public business. The government, under these circumstances, was really carried on by British officials in the name of the khedive. The present British agent, Lord Kitchener, who has already earned the right to be called "the friend of the fellahin," desiring to bring about a more equitable political representation of the agricultural population, and possibly wishing to forestall democratic agitation, favored a scheme for consolidating the General Assembly and the Legislative Council into one body with real legislative functions. The consent of the khedive was obtained, and on July 20 a khedival decree was published abolishing the Legislative Council and the General Assembly and constituting a new Legislative Assembly and conferring upon it the important right to initiate legislation. The ministry may still disregard the will of the advisory body, but only after the measure in question has been thrice discussed by the assembly. This provision, it was felt, would make arbitrary action on the part of the ministry both unpleasant and unusual. The membership of the Legislative Assembly is partly elective, partly appointive. It contains 66 elected members out of a total membership of 89, i.e. 74 per cent., whereas the Legislative Council had only 16, or 53 per cent. of its 30 members elective. The manner of election was also reformed. The elected councilors are chosen by elected electoral colleges as before, but in place of the old system, whereby each town or village, regardless of size, designated one elector, a scheme was introduced dividing the country into 66 equal electoral districts and within those districts apportioning the electors on a basis of population. One-third of the 66 councilors are to be renewed every two years. The biennial elections consist of two stages: the choice of elector-delegates by popular vote and the designation of the councilors by the elector-delegates; in addition, there might be second elections, in case an absolute majority was lacking. The other 23 members of the Legislative Assembly included the ministers and other persons appointed by the government in such a manner that in the Assembly there would always be four representatives of the Copts, three Bedouins, two merchants, one engineer, one pedagogue, and one municipal representative.

October 26 was fixed as the date on which the first stage of the election should take place. The balloting was quiet, although in some constituencies the competition was very keen—so keen, in fact, that second elections had to be held. On December 13 electors met to choose the councilors. Of the 66 councilors elected, about 20 were known to hold views which would lead them to oppose the government. Saad Pasha Zagloul, a Nationalist of Cairo, was named as the probable leader of this group. The opening of the Legislative Assembly by the khedive will take place January 20, 1914.

LORD KITCHENER'S REFORMS. Lord Kitchener's report, published in May, gave a sweeping review of the plans for promoting prosperity in Egypt. The reclamation of land by irrigation, the extension of education, the possible development of rural credit, and the development of mineral and industrial resources were among the topics mentioned. The protection of the fellahin (peasantry), planned in 1912, was now an accomplished fact under the five feddans law (promulgated December 4, 1912 and subsequently extended and amended), a measure somewhat akin to the United States homestead laws and the Punjab land alienation act. "It gives protection to the small cultivator of five feddans against expropriation of his land, house, and farming utensils for debt . . . . The protection of the poorer fellah in this manner was rendered necessary by the action of the small foreign usurers, who scattered throughout the country in the villages, and financed by various banks, were able, with the support of the capitulations, to lend money on mortgage to fellaheen at exorbitant rates of interest, 30 to 40 per cent., and even higher, being not unusual charges." While safeguarding the small proprietor's tenure, the law makes it more difficult to borrow money, and it is quite possible that the next step will be a rural credit scheme. Another much-discussed reform, the protection of minors against the greed or dishonesty of guardians, was not yet embodied in the law. The Legislative Council had approved the measure, to be sure, but joined with the protection of minors bill was a succession dues bill, and to the latter the councilors were decidedly opposed. The succession dues bill imposed duties on inheritances, ranging from ½ per cent. on the net value of estates between £1000 and £2000 to 3 per cent. on estates over £25,000; and even higher taxes were imposed on inheritances of distant relatives. Estates under £1000 in value were exempted. Many other plans were foreshadowed; among them a more extensive education in domestic science for girls, the prevention of flagrant abuse in the prison system, and the establishment of a food-inspectorate at Cairo. Moreover, a commission appointed by the minister of finance recommended that the present system of sharp discrimination between the ordinary and extraordinary budgets, as provided by the Anglo-French agreement of 1904, be done away with and that all expenditure be included in one general budget.

NEW MINISTRIES. On November 20 decrees were signed which created two new portfolios in the cabinet, the portfolios of *Wakfs* and of agriculture. The reorganized ministry was as follows: Premier and minister of the interior, Mohammed Said Pasha; finance, Said Zulficar Pasha; public works and war, Ismail Sirri Pasha; justice, Hussein Rushdi Pasha; education, Ahmed Hilmy Pasha; foreign affairs, Yusef Wahba Pasha; *Wakfs*, Ahmed Heshmet Pasha; agriculture, Mohammed Moheb Pasha.

EICHLER, KARL N. An American musician, died August 9, 1913. He was born in Germany in 1826, and began the study of music at Leipzig, at the age of eight, under Hermann. At an early age, he removed to the United States and setttled in Boston. He was the founder of the (German) Germania Orchestra, which later was the nucleus of the Boston Symphony Orchestra. For nearly 40 years he was director of music at Harvard commencements. During the last years of his life he devoted most of his time to violin teaching. At the time of his death he was the oldest living member of the Boston Symphony Orchestra.

ELECTION OF SENATORS, DIRECT. See ELECTORAL REFORM.

ELECTORAL REFORM. The more important measures passed by the State legislatures in 1913 relating to electoral reform are noted below.

INITIATIVE AND REFERENDUM. Constitutional amendments providing for initiative and referendum were adopted at the election in November, 1912, by Idaho, Nebraska, and Wyoming, and the legislatures of 1913 in these States passed measures putting these amendments into effect. Constitutional amendments providing for initiative and referendum were submitted by the legislatures in 1913 in Iowa, Minnesota, North Dakota, and Texas by the people. The legislature of Arizona enacted laws for carrying into effect the existing initiative and referendum provisions of the constitution of the State. In the election in November, 1912, proposed constitutional amendments providing for the initiative and referendum were rejected by the voters in Wyoming and Mississippi. The amendments failed for lack of sufficiently large vote, although the vote on the subject in the two States named was respectively five to one and two to one in favor of the amendments. The legislature of Arkansas in 1913 extended the reform municipalities. The legislature of Massachusetts passed a law to provide for submitting to the voters, on official ballots, questions of public policy. An act to provide for the submitting to the people the article of amendment to the constitution authorizing the referendum, was also agreed to by the legislature. A number of States during the year enacted laws regulating the circulation of the initiative, referendum, and recall petitions, and otherwise dealing with the administration of existing laws on the subject.

THE RECALL. Constitutional amendments providing for the article were adopted at the election of November, 1912, by Arizona, Colorado, Idaho, Nevada, and Washington. In Colorado the constitutional amendment adopted included the article of certain judicial decisions. Laws putting these amendments into effect were passed by the legislatures of these States in 1913. Proposed constitutional amendments providing for the recall were submitted to the voters by the 1913 legislatures of Kansas and Minnesota.

Primary Election Laws. Primary election laws in one form or another were enacted in California, Florida, Hawaii, Idaho, Iowa, Kansas, Minnesota, Montana, Missouri, New Hampshire, Ohio, Pennsylvania, and Texas. There were also some amendments of existing primary election laws in other States. In Illinois the primary election laws were amended in many respects, including provision for presidential preference primaries, and for the selection of members of controlling committees of political parties and delegates to political conventions. In Vermont the legislature submitted to the vote of the people, the question of whether they prefer a presidential primary system, whereby voters may instruct delegates to political conventions, or a direct primary, whereby electors vote directly for candidates for State, congressional, and county officers.

Direct Election of Senators. The Seventeenth Amendment to the Constitution, providing for the direct election of Senators, having been ratified by a sufficient number of States, went into effect in 1913. The first election held under this amendment was in Georgia, where Senator Bacon was reëlected on July 15. The senatorial vacancy caused by the death of Senator Johnston of Alabama, revealed a weakness in the amendment, in that it did not provide for a temporary appointment of senators when the State legislatures were not in session. Measures were introduced in Congress to provide for this, but had not been acted upon at the end of the year.

Corrupt Practices. Corrupt practice acts were adopted by the legislatures of Arkansas, Montana, Nevada, and Ohio. The Oregon legislature amended the laws on the subject.

Lobbying. The Ohio legislature passed a stringent law regulating lobbying, under which a person engaged in lobbying must file a statement with the Secretary of State, and obtain a certificate, and an itemized statement of disbursements must be filed.

Short Ballot. The movement for a short ballot showed progress in the legislative sessions of 1913. In their messages to the legislature several governors embodied recommendations for the principle, and bills introducing it into effect were introduced in the Senate, and the legislatures of Michigan, Ohio, and New York, among others. Bills for applying the principle to county governments were introduced in the legislatures of Wisconsin, Kansas, Iowa, and Washington. The governors who specifically recommended or asked for consideration of the short ballot in their messages were Governors Cox of Ohio, Clark of Iowa, Ammon of Colorado, Ferris of Michigan, and Lister of Washington. Several other governors who were not officially committed to the principle personally expressed views favorable to its adoption. The statement of Governor Cox is valuable in defining the principle of the short ballot, and it is given herewith. After quoting the Ohio Democratic State platform, which promises "a short ballot in the selection of administrative officers as a means of insuring greater scrutiny in the selection of public officials and for fixing and centralizing responsibility," he added:

"In keeping with the intent of the short ballot provision the legislature should abolish as elective the offices of dairy and food commissioner, and clerk of the Supreme Court, both of which are of legislative origin, making the former position appointive by the governor and the latter by members of the Supreme Court. An amendment to the constitution should be initiated, making the positions of secretary of State, attorney-general, treasurer, and auditor executive departments to be filled through appointment by the governor. This would leave only the governor, lieutenant-governor, and judges of the Supreme Court to be elected. The result would insure harmony of action in the State department, and centre responsibility in the executive. The several executive department heads could then act in an advisory capacity with the governor as his cabinet. This is identical with the Federal plan which is conceded to be efficient."

As will be noted from these recommendations of Governor Cox, the term "short ballot" does not refer simply to physical size. It proposes not a mere reform of the machinery of election, but an actual change in the structure of State government.

ELECTRICAL ENGINEERING. See Automobiles; Electric Power, Transmission of; Railways; Wireless Telegraphy and Telephony; etc.

ELECTRICAL INDUSTRIES. The early months of 1913 were marked by great activity among the electrical manufacturing interests, but the pace slackened greatly in the late months of the year, due to the uncertainties incidental to changes in political control. The several public utilities in the electrical field failed to sustain their extraordinary rates of growth, notably the central station industry, whose rate of gain had formerly been about 20 per cent. annually. A leading authority on the growth of electrical industries contributes the following estimates of the gross income of electrical industries in 1912 and 1913:

	1912	1913
Electrical manuf'ures.	$ 350,000,000	$ 375,000,000
Electric railways......	625,000,000	650,000,000
Central stations.......	450,000,000	450,000,000
Telephone service.....	350,000,000	350,000,000
Telegraph service.....	85,000,000	85,000,000
Isolated plant service.	125,000,000	125,000,000
Miscellaneous	125,000,000	125,000,000
Total	$2,110,000,000	$2,160,000,000

ELECTRIC BATTERIES. The storage battery enjoys a steady increase in service in connection with the propulsion of motor vehicles, industrial trucks, baggage and freight trucks, mine locomotives, street cars, and submarine craft. The electric vehicle gains slowly in popularity because of its high first cost. An alliance between Mr. Edison and a leading manufacturer of low-prized gasoline cars was reported, late in 1913, the object being the production on a very large scale of a battery-propelled vehicle at a cost of $750. The success of this venture would bring the electric vehicle, whose operating economies were widely recognized, into widespread use. The great vogue of electrically operated appliances for signaling, starting, lighting, and ignition in gasoline automobiles created an enormous market for portable battery sets. A reliable authority estimated that 500,000 cells had been produced for these purposes. Improvements in storage cells tended toward weight reduction and increased in ruggedness. A new type of cell had a semi-dry electrolyte, whose advantages were claimed to be freedom from spilling and evaporation. In another new type only a part of the available active material was initially formed, the remainder being gradually made active during the life of the cell. This prolongs the life of the cell and sustains its initial storage capacity.

ELECTRIC LIGHT AND POWER. See MUNICIPAL OWNERSHIP.

ELECTRIC LIGHTING. The most important new illuminant produced in 1913 was the nitrogen-filled tungsten lamp. Many years ago experiments were conducted by Edison and others with nitrogen-filled carbon lamps in the hope of increasing the life which could be secured at a high temperature of incandescence. The failure of the early experiments is in marked contrast to the success of this arrangement with tungsten filaments of large diameter. The reduction of evaporative tendency of the incandescent metal due to the gas pressure permits a very high temperature to be sustained for a long period of life. The increased heat losses by conduction and convection are more than offset by the higher luminous efficiency of the filament if its diameter is relatively large. Filaments for gas filled lamps are prepared by coiling tungsten wire about a mandrel of small diameter into a close helix, which forms a very compact luminous element of excellent mechanical strength. As the tungsten softens appreciably when in operation the short length of the helical filament greatly simplifies the supporting problem. Nitrogen-filled lamps are provided with relatively long bulbs, affording ample gas-cooling space above the filament. Blackening occurs only in the upper portion of the bulb and causes no reduction of the downward light. The efficiency which can be obtained by this arrangement improves with the size of the lamp up to 1000 candle power. For this and larger sizes a performance of one-half watt per candle power was obtained with a life of from 1000 to 2000 hours. The first field to be entered by the new lamp was that of series street lighting on alternating-current systems. The lamps are arranged to operate at 20 amperes and relatively low voltage through series transformers. The housing and enclosing globe closely resemble those of arc lamps. The light is a satisfactory approach to white, is extremely steady, and is unaffected by winds. The maintenance and operating costs of a 1000 candle-power unit are less than those associated with an arc lamp of similar illuminating power. Nitrogen-filled lamps have little advantage over vacuum tungsten lamps in efficiency below a candle power of 500.

The standard form of tungsten lamps made very rapid progress in displacing carbon lamps of all types. In 1912 the tungsten lamps constituted for the first time a majority of those produced and used. Many central station companies provided free renewals of tungsten lamps in sizes exceeding 100 candle power. The modern lamps showed marked improvement in strength, in uniformity of rating and life, in the absence of bulb-blackening, and a gain of from 5 per cent. to 15 per cent. in efficiency over the lamps of 1912. The coiled-filament type of lamp was extensively used in headlights, projectors, and signal lamps, where a closely concentrated source of light was imperative. Series tungsten lamps were used in very large numbers to displace incandescent gas mantles in street lighting.

Among the arc lamps the performance of the enclosed flame type showed the most marked advance. Series alternating-current arcs of this class were perfected and had a very wide adoption for street lighting. With the advent of improved white light electrodes which gave efficiencies equal to those formerly attained only with yellow electrodes the latter decreased in use. As a result the flame arc increased greatly in favor as a street illuminant and was installed in very large numbers. Yellow flame arcs giving performances of 0.2 watt per mean hemispherical candle were widely used in Europe. The inverted magnetite arc supported by an iron standard of pleasing design gained an important place in decorative street lighting.

American interest in the neon vacuum tube lamp was greatly stimulated by the demonstrations made by the inventor, M. Claude, in American cities. These tubes are operated in lengths of about 65 feet and produce an intensity of 60 candle power per foot, or much higher than that of the Moore tube. The spectrum shows a pronounced excess of red, but the effect of combining the neon tube with the greenish mercury arc is a very satisfactory approach of white.

In the field of general illumination 1913 was noteworthy for the great gain in favor of the semi-indirect method, for the general advance of the standards of street illumination in cities of moderate size, and for the greatly increased response on the part of the general public to the campaign conducted in recent years by the professional lighting societies for improved artistic and hygienic standards of lighting.

ELECTRIC POWER, TRANSMISSION OF. The electric power transmission developments of 1913 fully sustained the trend toward higher working voltages manifested during the five preceding years. The new record of 150,000 volts set by the opening to service of the 240-mile transmission line from Big Creek, Cal., to Los Angeles was doubtless but one step in the progress. There appeared to be no serious obstacle to the use of higher voltages as the economic situation warranted. The number of systems operating at 100,000 volts was very greatly increased in the year. Transmission at this voltage had made a beginning in Asia. A line was placed in service at this voltage between the Tata plant in the Ghats and Bombay. The power developed, approximately 66,000 kilowatts, was largely used by cotton mills. In America the year's most conspicuous event in hydro-electric circles was the successful inauguration of service from the completed half of the great Keokuk plant on the Mississippi. The capacity of 150,000 horse power was being doubled and much of the output was transmitted at 110,000 volts to St. Louis. When completed this will be the largest power plant of any type in the world.

Permits were granted by the Federal authorities for the immediate development of five great projects on the public domain in the Pacific district. The Pacific Light and Power Corporation was building a series of four plants totaling 150,000 horse power, of which the

Big Creek plant was already in service. The Great Western Power Company was developing plants on the Feather River with a total capacity of 350,000 horse power. An important feature of this system was to be a great water reservoir covering 43 square miles. The Southern California Edison Company was building a system of four large plants on the Kern River. The Pacific Gas and Electric Company was engaged in the development of the South Yuba River and built in that connection the highest masonry dams in existence. All the above were high head developments in connection with transmission systems to the main industrial centres of California. The fifth permit was taken out by a Spokane company for a great development on the Pend d'Oreille River, where 350,000 horse power was available. The permit required the development of 50,000 within three years. The Federal authorities also granted to the holders of concessions on the American side of the Niagara River the right to add 25 per cent. to the present developments.

The year 1913 was important in the development in the southern Appalachians. The Hale's Bar station on the Tennessee River with 45,000 kilowatts of capacity introduced some unique features. (See DAMS.) The head at this plant is exceedingly variable. In order to insure to each generator the power necessary to develop its full capacity each shaft carried three turbine wheels and the number in use was varied according to the head. The Tallulah Falls plant had a maximum capacity of 70,000 kilowatts and used the highest head reaction wheels yet installed, viz., 600 feet. Power was transmitted from this plant to the Atlanta district at 100,000 volts. This system was unique for the extensive use made of outdoor substations and switching equipment.

The largest single development undertaken in Canada was the Cedar Rapids plant on the St. Lawrence, nearing completion at the end of the year. The initial capacity was to be 100,000 horse power and extensions were planned to obtain an ultimate capacity of 160,000 horse power. Of this output a single customer, the Aluminum Company of America, had contracted for 80,000 horse power. The remainder was to be transmitted to Montreal. Another important Canadian item was the extension of the 100,000 volt transmission system of the hydro-electric commission of Ontario from St. Thomas to Windsor, a distance of 130 miles.

The most interesting of the new plants installed in Europe was one of 15,000 horse power at Martigny, Switzerland. This plant employs the largest head in the world, 5400 feet. But 30 cubic feet of water per second are required to develop the full 15,000 horse power. The Thury system of transmission making use of a constant direct current gained much in prominence through the project developed to transmit 20,000 kilowatts from the hydro-electric plant at Trollhätten, Sweden, to Copenhagen. A careful analysis of the problem showed a marked advantage in investment and operating economy in favor of the Thury system operating at 90,000 volts, with earth return over the three-phase system at 100,000 volts. The latter was handicapped by the impracticability of crossing the Strait of Öresund with a submarine cable at voltage higher than 20,000, necessitating the use of voltage changing substations. A 90,000-volt single conductor cable for direct current was regarded as entirely practicable. The direct current system has other incidental advantages, principally the simplicity of the problem of line construction and insulation.

An important development in the transmission of power developed in steam plants at mining centres was shown by the system of the Central Illinois Service Company, which serves by a 33,000-volt network 125 communities in 40 counties of Illinois, besides a great number of rural customers. Power was generated in three large stations at central points. The transmission system is 700 miles in length. Great advantages accrue to the smaller communities through moderate rates, all-day service and the attractive conditions afforded for industrial development. This system also opens an immense field for the application of electric power to agriculture.

ELECTRIC RAILWAYS. Conspicuous among the electric railway developments of 1913 were the large number of electrification projects for which plans were announced. The high-voltage direct-current systems of motive power operating at trolley voltages of 1200 and 2400 were selected in a very large majority of these cases. The most ambitious projects of this type were located in the mountainous districts of the Northwest. The Chicago, Milwaukee, and St. Paul Railway was proceeding with the electrification of a division 113 miles in length in the State of Montana and was soon to extend the electrified section over a length of 450 miles. Power was to be obtained from hydro-electric companies operating in the district. An equally important development was the electrification of 450 miles of the Great Northern system between New Rockford, S. D., and Lewiston, Mont. The Canadian Pacific Railway was at work on the electrification of its Rossland division. All these projects were being developed on the 2400-volt system, following the successful operating experience obtained with this system on the Butte, Anaconda, and Pacific line during 1913. A 2400-volt system between Kalamazoo and Grand Rapids was also approaching completion. The Canadian Northern system was engaged in the electrification of its Montreal tunnel (see TUNNELS) and terminal facilities, also using the 2400-volt system.

Important interurban systems using 1200-volt direct-current equipment which were put in operation during 1912 included the Nashville-Gallatin line; the Oregon Electric Railway, a line 122 miles in length on which sleeping cars and observation trains were operated; the Kansas City, Clay County, and St. Joseph Railway; and an extensive network in the suburban district about San Francisco. The above cases pointed to a growing preference among American engineers for the high-voltage, direct-current systems, which was in marked contrast to the firm allegiance of Europeans to the single-phase alternating-current system. Very severe criticisms were made of the recent American practice by prominent European engineers, but experience was not sufficient to afford final evidence in the case. Recent European practice tended to the use of very high trolley voltages in single-phase systems and to a more extended application of three-phase induction motors. The latter type was given an extensive test in connection with the development work for the Berlin, Magdeburg, and Leipzig electrification, which was 100 miles in length. The successful results point to the use of the three-phase system.

A distinct innovation in electric traction was planned in connection with the electrification of a coal road between Bluefield and Vivian, West Virginia. The line crosses the ridge of the Alleghenies and has very heavy grades. The locomotives are designed for the operation of coal trains of 3500 tons and are to be equipped with the single-phase induction motors operating at 11,000 volts and 25 cycles. This marks the first appearance of single-phase induction motors in the traction field and it is noteworthy that the service planned is exceptionally severe.

Several important developments in city transportation systems may be found both in America and Europe. Paris and Berlin were actively engaged in the electrification of large suburban systems. In Berlin a new double-tracked cross-city line was being constructed. The length was to be six miles, mainly in tunnel. Subway construction work went actively forward in Boston and New York. (See Rapid Transit.) The municipal authorities in Chicago brought forward a comprehensive scheme of subway development. The several elevated lines in Chicago were brought under unified control with universal transfers and through routing of trains as immediate results. The Pennsylvania Railroad began an extensive electrification of terminal facilities and suburban lines in Philadelphia. The first link in the construction was that between Broad Street Terminal and Paoli, a distance of 20 miles. This work was part of a comprehensive plan to electrify the entire main line between New York and Washington. Contrary to its practice in New York, where the company maintains extensive power stations, the power for the Philadelphia section was to be purchased from the local central station company. The policy of railway companies of all classes to contract with central station companies for power supply was gaining rapid headway. The chief advantages were found in the relief of the railway company from the maintenance of a heavy item of investment and the low rate which can be granted for wholesale power supplies when the peak load does not coincide with the peak of power supplied for public use.

New records for power and tractive capacity were set by the new locomotives of the New York Central system. The new 100-ton type will develop 1460 hp. continuously, 2000 hp. for one hour, and 5000 hp. for brief periods. The new 110-ton type will develop 2000 hp. continuously and 2600 hp. for one hour. The latter type will operate a 1200-ton train continuously on straight level track at a speed of 57 miles per hour. An interesting new type of locomotive was that provided for the St. Paul, Rochester, and Dubuque line. Motive power is provided for the motors by a gasoline-electric generator. The equipment is similar to that previously used in gasoline-electric cars but on a much heavier scale. This locomotive will haul a 5-car train at a speed of 45 miles per hour and affords a great saving in labor and fuel as compared with the ordinary steam type.

A unique type of electric tractor for the switching of freight cars in city streets was placed in service by the Pennsylvania Railroad. It is essentially a storage-battery locomotive with rubber blocked tires like those of heavy motor trucks. The battery consists of 80 Edison cells. The great adhesion permits a very great tractive effort to be developed. The gross weight is 14 tons, the normal draw-bar pull is 8000 lbs. and the maximum draw-bar pull 21,500 lbs. In test the tractor successfully bucked a large steam freight locomotive with its throttle wide open, in addition to a dead load of three cars.

ELECTRO-CULTURE. See Agriculture.

ELECTRO-METALLURGY. See Metallurgy.

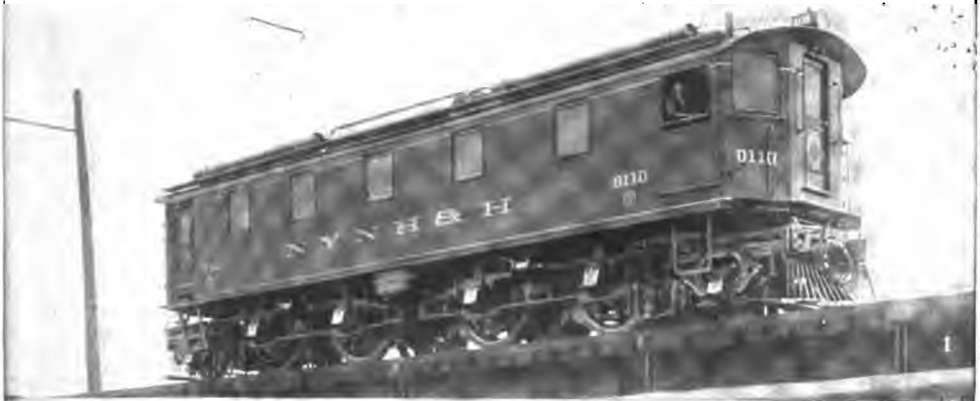
ELECTRO-THERAPEUTIC TREATMENT. See Cancer.

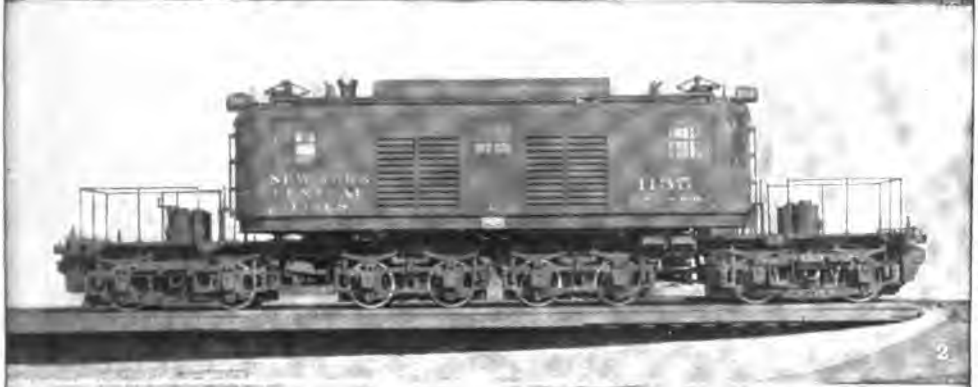
ELLIOTT, Howard. An American railway official, appointed in 1913 president of the New York, New Haven, and Hartford system to succeed Charles S. Mellen (q.v.). He was born in New York City in 1860, and graduated from the Lawrence Scientific School at Harvard University in 1881. He served in various connections with a number of railways until 1887, when he was appointed general freight and passenger agent of the St. Louis, Keokuk, and Northwestern Railroad Company. From 1891-6 he was general freight agent for four roads included in the Burlington system, and from 1896 to 1902 was general manager of these roads. He was second vice-president of the Chicago, Burlington, and Quincy Railroad in 1902-3, and in the latter year was appointed president of the Northern Pacific Railway Company. His administration of this road was so successful that he became known as one of the ablest railway presidents in the United States. In 1913 he was chosen to succeed Charles S. Mellen as president of the New Haven system. (See Railways.) He was an overseer of Harvard University and a member of several scientific and historical societies. A volume of his articles on subjects connected with the railways was published in 1913 with the title, *Truth About the Railroads.*

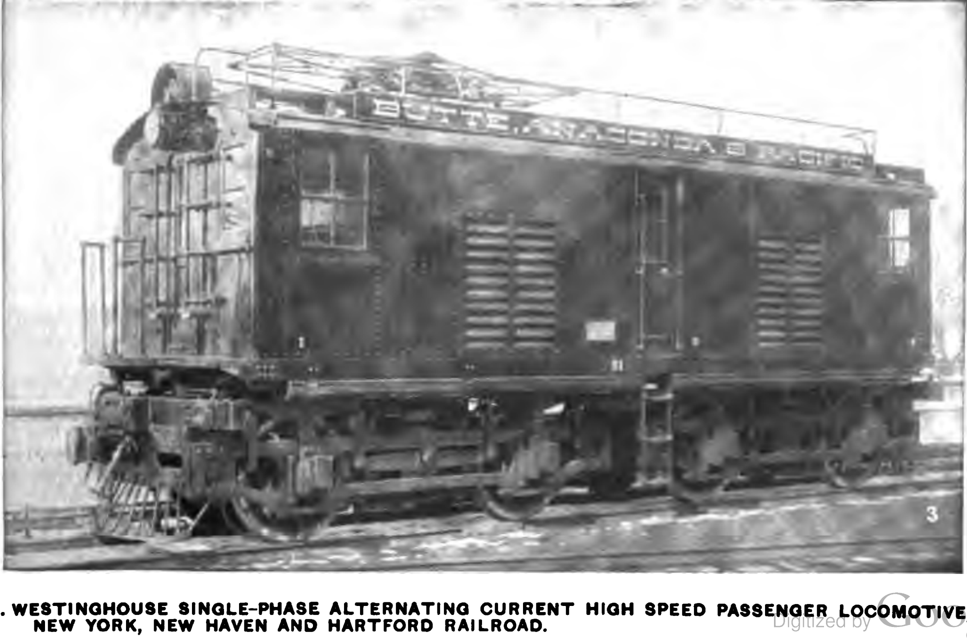
ELLIS, Robinson. An English scholar and educator, died October 9, 1913. He was born at Barming, Kent, in 1834, and was educated at Rugby and at Balliol College, Oxford. In 1858 he was appointed fellow of Trinity College, Oxford. He became professor of Latin at the University College, London in 1870, and from 1883-93 was Latin reader at Oxford. In the latter year he received the appointment of Corpus professor of Latin literature at Oxford University. He was a voluminous writer on classical subjects. Among his published writings were *Specimens of Latin Palæography from Manuscripts in the Bodleian Library* (1903); *Catullus in the XIV Century* (1905); and *The Annalist Licinianus* (1908). He also edited the works of many Greek and Latin writers, and contributed numerous articles to English and foreign philological journals. His last work was an edition of *The Amores of Ovid* in 1912.

EMETINE HYDROCHLORIDE. The hydrochloride, $C_{30}H_{44}N_2O_4 2HCl.2H_2O$, of an alkaloid found in *Cephælis ipecacuanha.* It occurs as a white crystalline powder, soluble in water and alcohol. Emetine acts similarly to ipecac, but is relatively more nauseant and less emetic, and causes less renal irritation, but more cardiac depression. In the form of injections the drug has been reported to have special value in amebic dysentery. It is also used in small doses as an expectorant.

ELECTRIC LOCOMOTIVES







1. WESTINGHOUSE SINGLE-PHASE ALTERNATING CURRENT HIGH SPEED PASSENGER LOCOMOTIVE, NEW YORK, NEW HAVEN AND HARTFORD RAILROAD.
2. GENERAL ELECTRIC COMPANY 600-VOLT DIRECT CURRENT ARTICULATED LOCOMOTIVE FOR NEW YORK CENTRAL AND HUDSON RIVER RAILROAD.
3. GENERAL ELECTRIC COMPANY 2400-VOLT DIRECT CURRENT ELECTRIC LOCOMOTIVE, BUTTE, ANACONDA AND PACIFIC RAILWAY.

EMIGRATION. See Austria-Hungary under *Emigration Scandal*, and Immigration and Emigration.

EMPLOYERS' LIABILITY. See Workmen's Compensation.

ENGINEERING. Engineering progress in 1913 was marked by the completion of some important projects and the initiation of others. In civil engineering reference should be made to Bridges for an account of some notable structures, to Panama Canal and Canals for a discussion of various undertakings in the construction of large waterways, to the articles Aqueducts, Water Supply, Water Purification, and Water Works for a consideration of the great aqueducts for the city of New York and Los Angeles, as well as for the general problems involved in the supply of pure water. The articles Dams, Concrete, Foundations, and Tunnels also discuss important construction of the year, while Docks and Harbors show that the ports of the world were undergoing improvement to provide for ships of ever-increasing size. To the article Railways reference should be made for a discussion of the economic and operating problems which concerned the railways of the United States rather more than construction; but the record of Railway Accidents throughout the world has its bearing on engineering problems. Rapid Transit with its subways and Tunnels for great municipalities involved questions of design and construction; while the various problems, often involving engineering, concerned with Municipal Government, are discussed under that head. Such titles as Garbage and Refuse Disposal, and Sewage should also be consulted. In electrial engineering the Transmission of Power by Electricity, involving the construction of great hydro-electric plants, was a feature of the year, while under Electric Railways developments, especially in high tension direct current systems, were prominent and are there discussed. Wireless Telegraphy and Telephony shows that radio-communication did not stand still in 1913, while the large units described under Dynamo-electric Machinery indicate progress in this field. Electric Lighting also showed progress.

In mechanical engineering, see Internal Combustion Motor, with what is said of its widening range of application. Pumping Machinery and Automobiles receive treatment under those heads, and fire apparatus is discussed under Fire Protection. The Steam Engine and the Steam Turbine consider the problems involved in shipbuilding. Attention is directed also to Tall Buildings.

Aeronautics is now a recognized branch of mechanical engineering, and its record is fully considered. Sanitary engineering problems are considered under Smoke Prevention, Bath Houses, and Water Purification, as well as under Sewage.

Marine engineering, also, or more properly naval science, in certain aspects, finds treatment under Battleships and Safety at Sea.

ENGLAND. See Great Britain.

ENTOMOLOGY. In the United States, much important work was done both by the Federal government and by the individual States in economic entomology. Generally speaking this was along two lines, one in research on insects in relation to plants, the other, their relation to the transmission of disease. In 1912 it seemed to have been clearly demonstrated that infantile paralysis is transmitted through the bite of the stable fly, *Stomoxys calcitrans*, but Sawyer and Herms were unable to confirm this demonstration, though they advise screening against it as a desirable precaution. Brues, however, held to his original belief concerning the relation between the insect and this disease, and reported on the distribution of the fly. Apparently it was of palearctic origin, but has been distributed by man throughout the world, being relatively more numerous in temperate than in tropic climates. The claim was made that the small black fly, *Simulium*, transmits the germ of pellagra, but Forbes, after a careful study of the development and distribution of this insect in Illinois, was unable to trace any relation between the distribution of the fly and observed cases of the disease. The house fly continued to attract attention, and in this connection it is interesting to learn how far they may travel from their breeding places. Hodge found house, stable, and blue bottle flies on the crib connected with the intake of the Cleveland city water supply at a distance of at least six miles from shore, and where there were no possible breeding places. This would indicate that they may be carried at least that far by winds. Skinner found, in the vicinity of Philadelphia, that the earliest flies which appeared in the spring had evidently just emerged from the pupal cases. This is contrary to the usual notion that they always pass the winter in the imagal condition.

Strickland, working on the larvæ of the black fly in eastern Massachusetts, found that there they are attacked by a parasitic fungus which is fatal to them and is probably responsible for the relative scarcity of these flies in that section of the country. He suggested that it may possible to artificially cultivate this fungus, and by spreading it in the regions where the flies are numerous to infect them, and in that way control the pest. The browntail and gypsy moths were reported as slowly working their way westward and will soon reach the limits of New York State. A small colony of gypsy moths was found in 1912 at Geneva, N. Y., but was reported in 1913 as having been entirely killed off. In Massachusetts a consolidation of the Federal and State work was effected in 1913, and A. F. Burgess was put in charge. Fiske reported that in the immediate vicinity of Boston there seemed to be a decrease in the numbers of the gypsy moths, but that outside the metropolitan district they were as numerous as ever. About 50 per cent. of the decrease near Boston is due to imported parasites. The moths live, by preference, on oaks, apples, gray birch, and willows, but will not thrive on white pine. Accordingly, owners of forests where direct control of the pest would be impossible because of the expense, are advised to cut their trees and reforest with white pine.

In the vicinity of New York City, the hickory bark borer, *Scolytus quadrispinosus*, was reported as doing much damage. The eggs are laid during August, in holes cut through the bark into the sapwood, the larvæ hatching in September. Local injections of gasoline into the holes were recommended as a practicable way of killing the insects.

As a result of several years of planning, an imperial bureau of entomology was founded in England early in 1913, having for its function a general survey of the noxious insects of the world, and the collection and coördination of all available information concerning them. The practical results hoped for are that any British country may secure information as to what insects it is in danger of importing from other countries and the best measures to be employed against them. It also attempts to identify any insects of economic importance which may be submitted to it, and is to publish a monthly *Review of Applied Entomology* relating especially to investigations on the control of noxious insects. Guy A. K. Marshall was director of the bureau, and editor of the journal.

EPILEPSY. A possible connection between epilepsy and the pituitary body (a small gland at the base of the brain) is shown by the X-ray. While the gland itself cannot be photopraphed, Johnston noticed decided departures from the normal in the bony hollow in which the gland rests. These changes consisted in an overgrowth of the anterior and posterior clinoidal processes, which are four bony spines growing from the corners of the sella turcica (the bed in which pituitary gland lies). In some cases the clinoidal process increased to such an extent that they covered the gland almost entirely. The changes just noted were particularly confined to epileptics who developed the disease between the ages of 15 and 35 years, the attacks beginning as mild evidences of *petit mal* and gradually increasing in severity and frequency. In line with these observations were those of Gelma, who treated cases of typical epilepsey with thyroid extract. It was known that the pituitary gland and the thyroid have a reciprocal influence on nutrition and growth, and it was possible that the administration of glandular extracts would prove of service in the treatment of certain cases of this disease. Gelma's patients were cured.

Many cases of epilepsy are undoubtedly due to minute or gross traumatism of the nervous system, as is frequently shown in operations on the brain. Pierret found by animal experimentation that epilepsy can be produced by various sorts of traumatism of the nervous system. He believed that in many cases of idiopathic epilepsy the patients had had some infectious disease localized in the nervous system, which had damaged the nerve cells and left behind it cicatricial areas. Later some intoxication takes place and toxic products, acting on these sclerotic foci, cause convulsions, which may be motor, sensory, or psychic. The rational treatment, therefore, is to protect the patient from all possible causes of intoxication from within or without. Some support for this view was found in the 18th annual report of the Craig Colony for Epileptics, Sonyea, N. Y. (1912). Notable among the pathologist's findings were that a considerable percentage of epileptics have various congenital deformities or development defects, too diverse to classify; that various forms of encephalitis bearing a relation, possibly, to the infectious disease, are also found; that constipation or intestinal stasis resulting in intestinal toxemia is constantly present. Nephritic changes are present in a large number of cases, due, it is believed, to high blood-pressure and congestion during attacks, it being found that albuminuria accompanies these attacks. In case of death during or immediately following a convulsion intense congestion of the kidneys is always found. The brain atrophies of various regions as well as internal hydrocephalus are frequently present, and also meningeal adhesions and thickenings, but neither these nor the tumors found could be shown to bear any constant relation to the epilepsy.

EPISCOPAL CHURCH. See Protestant Episcopal Church.

ERDMAN ACT. See Arbitration and Conciliation, Industrial.

ERITREA. An Italian colony on the Red Sea, covering an area estimated at 45,800 sq. miles and having a population of about 279,000. Capital, Asmara. The important product is salt, sent to southern Abyssinia, where it is the monetary currency. The 1910 imports were valued at 16,372,830 lire; exports, 7,277,865; transit, 3,857,351. Tonnage entered, 183,532. The Massaua-Asmara railway will be extended to Keren. Revenue (estimated) for 1910-11, 8,977,750 lire (subvention, 6,350,000); expenditure, 7,223,700. A governor administers the colony.

ESPERANTO. See International Language.

ESTRUP, Jacob Bronnum Scavenius. A Danish statesman, died December 24, 1913. He was born in 1825; early entered public life; and from 1875 to 1894 was premier and minister of finance. In 1900 he was made a member of the upper house. He was for many years the ally of the king in defying the parliament when it insisted on representatives of the people being appointed to cabinet offices.

ETHICS. See Philosophy.

ETHIOPIA. See Abyssinia.

ETHNOGRAPHY. See Anthropology.

ETHNOLOGY. See Anthropology.

EUGENICS. That science can do much for the improvement of the race is the growing conviction of trained scientific intelligence the world over. This conviction found organized expression in America, when, in 1910, with the financial assistance of Mrs. E. H. Harriman, John D. Rockefeller, and others, the Eugenics Record Office at Cold Spring Harbor, Long Island, N. Y., was founded, and began its work under the directorship of Charles B. Davenport—a work which thus far has been distinguished by its conservative scientific methods and guarded generalizations and recommendations. This institution aims to be a repository and clearing house of eugenical knowledge, and a centre from which diverge a series of widespread investigations regarding the hereditary consequences of matings, differential fecundity, and the laws governing the inheritance of specific human traits. The ridicule and the objections turned against eugenics are generally directed at extravagant claims in which responsible eugenics do not in fact indulge. The point of view of the eugenists was exemplified in the words of Major Leonard Darwin, president of the International Eugenics Congress of 1912—at which, be it said, no less than 500 delegates were present. "At present," declared Major Darwin, "the most urgent need is for more knowledge."

The year 1913 was marked in a general way by the diffusion of a right understanding of the methods and aims of the new science. Specifically, a number of facts related to the subject should be chronicled. In the United States, five States passed sterilization laws. These were North Dakota, Michigan, Kansas, Oregon, and Wisconsin. The successful practical operation of such laws was indicated by the strengthening of existing sterilization legislation in Iowa and California. In England and in New Zealand laws designed to prevent procreation in the case of certain classes of criminals and defectives were passed. Spain was notably active in eugenic provisions for the care of pregnant women and infants. The decision to hold the 1915 International Eugenics Congress in New York was reached in 1913. John D. Rockefeller provided salaries for six investigators for as many institutions caring for defective or socially inadequate persons. Through the efforts of the Eugenics Record Office investigations proper to it were, at the end of 1913, being carried on in twenty-nine State institutions. Lectures on eugenics by some competent authority—thanks to the generosity of Mrs. Huntington Wilson—will be given at universities and social settlements. Notable studies, under the imprint of the Eugenics Record Office, have appeared: C. B. Davenport, *The Family History Book*, and *State Laws Limiting Marriage in the Light of Eugenics;* Harry H. Laughlin, *The Eugenics Record Office at the End of Twenty-Seven Months' Work*, and *The Legal . . . Aspects of Sterilization*. A valuable recent book bearing on eugenics in general is Havelock Ellis, *The Task of Social Hygiene* (New York and London, 1912).

See also CARNEGIE INSTITUTION OF WASHINGTON, *passim;* COMMISSION ON UNIFORM STATE LAWS, and MARRIAGE AND DIVORCE.

EVANGELICAL ASSOCIATION. A religious denomination which has its chief strength among the German-born citizens of the United States. Its doctorine is that of American Methodism, but it is modified in the direction of greater democracy. Communicants are found in nearly all parts of the northern section of the United States and Canada, but there is also considerable strength in the West and South. Missionary work is carried on chiefly among the Italian immigrants. There were, in 1913, 2,110,134 communicants, 1659 churches, and 1003 ministers. For administrative purposes, there are twenty-four districts. The Sunday schools of the denomination teach about 175,000 pupils. The Young People's Alliance, connected with the church, numbers 50,000 members. A publishing house is maintained in Cleveland, O., and there are several philantrophic institutions and hospitals in Chicago, Philadelphia, and in cities throughout the Middle West. The principal educational institution is Northwestern College, at Naperville, Ill.

EXHIBITIONS, ART. See PAINTING and SCULPTURE.

EXPERIMENTAL PSYCHOLOGISTS, ASSOCIATION OF. See PSYCHOLOGY.

EXPLORATION. (For Arctic and Antarctic exploration, see POLAR EXPLORATION.) NORTH AMERICA. The studies along the lines of the Canadian Northern and the Grand Trunk Pacific railroads, which are adding two transcontinental lines to the Dominion, have greatly increased knowledge of the resources and potentialities of wide zones extending through the western part of Canada. Many settlers are now beginning to engage in agricultural and grazing industries in large areas whose economic possibilities were not known five years ago. Studies, also, that have been and are being made in Alaska, such, for example, as those that were summarized in the report of the Alaskan railroad commission in 1913, are giving the public new facilities for the study of Alaskan geography, of the distribution of natural resources and the possibility of utilizing them.

Considerable areas surrounding the headwaters of the Mackenzie River have thus far appeared blank on the official maps of British Columbia. This unexplored region was penetrated by Frederick K. Vreeland of New York, in 1912, who has just published (1914) some description of Laurier and Trident peaks and of other discoveries or explorations in the main range of the Rocky Mountains. From the top of Laurier Peak (7000 feet) he obtained a fine view of the mountains to the north and west, of which he took bearings and assigned them to their approximate position on his map. The mountains are divided into two ranges by a valley about 25 miles wide containing a main stream, flowing south, and its tributaries. The eastern range is chiefly composed of limestone and shale and its summits are more rounded and lower than those of the west. The western range is a rugged chain of serrated peaks extending beyond the range of vision, with several conspicuous snow peaks at the north.

SOUTH AMERICA. Dr. Hamilton Rice returned to New York late in 1913 from his journeys in 1912-13 in the Amazon basin. His detailed account has not as yet been published, but he is said to have done pioneer work among some of the right tributaries of the Amazon, chiefly in the republic of Colombia. His survey work embraced parts or all of the courses of the rivers Ariari, Guaviare, Calamar, Macaya, Inirida, Pafunaua, and Isana. The explorer says that, coupled with his earlier work, his new observations have enabled him pretty well to clear up the geography of the northwest Amazon basin between the Guaviare, Caquetá, and Rio Negro rivers.

Professor Isaiah Bowman of Yale University completed in the Central Andes, last summer, certain lines of investigation upon which he has been engaged since 1907. His field work related chiefly to the anthropogeography of the Puna of Atacama and the adjacent desert of Atacama—the influence that topography, drainage, and climate have had upon the distribution and customs of the people. He completed the season's work by investigating the relations between the now vanished Lake Minchin and Lake Titicaca.

The well-known ethnologist, Dr. Koch-Grünberg, to whom general attention was first called by his exploration of the headwaters of the Rio Negro, and his careful study of the Indian tribes there, has completed his two years' work in the eastern part of the Rio Negro basin and as far north as Mt. Roraima. He made a survey of his whole route, parts of which, as, for instance, the whole course of the Venturi River, had never been surveyed before. His other work included: Continuous observations of temperature and atmospheric pressure; 1000 photographs and many cinematograph pictures; many phonographic records of native songs and music; ethnographical, botanical, and geological collections; detailed studies of 21 Indian languages, some hitherto unknown; transcriptions of numerous texts, myths, and legends, and detailed notes on the customs and beliefs of various tribes.

AFRICA. Captain Jacobs, of the German naval service, has been making researches at the large Lake Tanganyika and from his soundings it appears probable, as far as our present knowledge extends, that this is the second deepest fresh water lake in the world The greatest depth he found was 4189 feet. Up to the time of his work the greatest depth discovered among the great lakes of Central Africa was 2625 feet. As the surface of Tanganyika stands 2559 feet above sea-level, the lake must be regarded as occupying one of the greatest crypto-depressions, for its floor sinks to 1539 feet below sea-level. The deepest fresh water lake is supposed to be Lake Baikal, in Siberia, with a recorded sounding of 4997 feet.

The French government is reported to have sent out parties in the winter of 1912-13 to study suggested routes for railroads across the Sahara to connect Algeria with Central Africa. The reports of these parties seem to show that they regard the scheme as practicable, and involving no serious difficulties. One party traveled southeast from Colomb-Bechar, the southwestern terminus of the Algerian railroad system to Insala, Agades, and Lake Chad. Another party branching off at Insala, went due south to about the latitude of Timbuktu, then turned east and rejoined the first route at Agades A third, starting from Gao, on the Niger, traveled northward to Silet. All the information will be carefully studied with a view to evolving, if possible, a definite plan for a railroad across the desert.

Mr. L. Gentil, the well-known geologist and explorer of Morocco, has been commissioned by the French government to make economic investigations with a view to developing that country's natural resources. Geographical and other scientific work will also be carried on as far as possible. Our geographical knowledge of Morocco is rapidly advancing under the French régime.

ASIA. Captain F. M. Bailey and Captain Morshead of the India service were reported, at the end of the year, to have just returned to India after successfully exploring the Sangpo River. This river runs for hundreds of miles eastward through the southern part of Tibet. It has long been practically certain, though never proven, that the river was the upper part of the famous Brahmaputra of India. The journey of these explorers was arduous, but they conclusively proved that these two rivers are one and the same. It is said that they found the reported falls, which have been the subject of much speculation, to be non-existent. Details of their journey have not yet been received.

Dr. F. de Filippi and his scientific staff went to India in July to begin their researches in the western Himalaya and the Karakoram. The sum of $50,000 had been raised to equip the party, which expects to be in the field over a year. Many problems concerning topography, geology, gravity, magnetism, meteorology, the various forms of radiation, etc., will be studied. The investigations will be carried on from Kashmir, over the Himalaya ranges, and through Baltistan and Ladakh into Chinese Turkestan. Among the specialists who are taking part in the work are Professors Marinelli, geography; Dainelli, geology; Amerio, atmospheric electricity; Marquis Venturigimori, meteorology; Commander Alessio, geodesy; and G. Adetti, astronomy.

OCEANOGRAPHY. Soundings taken by Captain Davis, of Dr. Mawson's Antarctic ship *Aurora*, while on his way to and from Wilkes Land in November and December, 1912, show that a great submarine bank exists to the south of Tasmania. For 100 miles south of that island the ocean bed descends steadily to 2082 fathoms, and then rises till it forms the crest of a ridge at least 150 miles long. As far as is now known, the shallowest waters over the ridge have a depth of 545 fathoms, but as the ocean in adjacent areas east and west sinks to depths of 2450 to 2700 fathoms, the ridge rises at least 11,000 feet above the ocean floor. It is thought that it may be a fragment of a lost continent that at one time connected Tasmania and Antartica.

EXPLOSIVES. See CHEMISTRY, INDUSTRIAL.

EXPOSITIONS. The two great events of the year were the celebration at Lake Erie in the United States and the exposition in Ghent, Belgium. Of these brief accounts are given below.

PUT-IN-BAY. This celebration had its official inception in 1908, when five commissioners were appointed by the governor of Ohio to prepare and carry out plans for the celebration of the one hundredth anniversary of the battle of Lake Erie, of General Harrison's campaign, and the ensuing century of peace between Great Britain and the United States. Subsequently commissioners were appointed by Pennsylvania, Michigan, Illinois, Wisconsin, New York, Rhode Island, Kentucky, Minnesota, and Louisiana. These, together with five commissioners from the United States, organized on September 10, 1910. Their plans included the Perry Memorial which was raised on a reservation of fourteen acres on a narrow neck of land on Put-in-Bay Island, opposite Gibraltar Island, and extending northward toward Middle Bass Island. It looks out over Lake Erie toward West Sister Island, whence Perry sent his famous message to Harrison. A design by J. H. Freedlander and A. D. Seymour, Jr., was chosen after an architectural competition held in Washington under the auspices of the National Commission of Fine Arts. It consists of a plaza rising in gradual ascent from the water's edge to the level height of twelve feet, and 758 feet long by 461 feet wide. There is a Doric column in the centre 335 feet high from the base to the light in the tripod surmounting the top, which is 300 feet high with a spectator's gallery reached by electric elevators from the crypt at the base. The column is forty-five feet in diameter and thirty-five feet at the top, and is built of granite. A building to the left is for a historical museum and contains a floor space of 3000 square feet, while the building to the right is a memorial emblematic of the centenary of peace between Great Britain and the United States.

The celebration as planned extended from July 6 to September 22, and consisted essentially of a triumphant voyage of Perry's flagship *Niagara*, the hull of which was raised from the mud at Erie and refitted so that the ship presented the same appearance as it did a century ago. After the exercises at Erie the *Niagara*, convoyed by a fleet of representative naval militia ships of the Great Lakes and the United States revenue cutters, pursued a long itinerary, ending at Put-in-Bay, September 10-11. The culminating event was at Put-in-Bay, where, on the anniversary of the battle, the memorial was dedicated with elaborate ceremonies presided over by Governor James M. Cox, and including an address by former President Taft. A great banquet was held at which there were 1000 guests. Finally, with solemn religious services, participated in by representatives of the United States and the British Empire, the remains of the American and British officers killed in the battle of Lake Erie were disinterred from the burial plot on the shore of Put-in-Bay Island, where they have reposed for a century, and reinterred in the crypt of the Perry Memorial.

San Francisco. Since the completion of the plans for the great Panama-Pacific International Exposition (see Year Book, 1912, p. 216) there had come the construction of the main group of exposition buildings, all of which were to be completed before July 1, 1914. The Division of Exhibits is grouped into eleven departments, as follows: A, Fine Arts; B, Education; C, Social Economy; D, Liberal Arts; E, Manufactures and Varied Industries; F, Machinery; G, Transportation; H, Agriculture; I, Livestock; K, Horticulture; and L, Mines and Metallurgy. Among the governments that accepted invitations to make official exhibits are Argentina, Bolivia, Brazil, Canada, Chile, China, Costa Rica, Cuba, Denmark, Dominican Republic, Ecuador, France, Guatemala, Haiti, Honduras, Italy, Japan, Liberia, Mexico, Netherlands, Nicaragua, Norway, Panama, Persia, Peru, Portugal, Salvador, Spain, Sweden, Venezuela, and Uruguay. Also thirty-five States took legislative action looking toward participation and twenty-five chose sites for their State buildings. During the year a government commission was appointed to take charge of the preparation and installation of exhibits to be shown by the various departments and bureaus of the national government. The matter of congresses, associations, societies, and conventions was being cared for by a bureau of conventions and societies, and already a large programme was arranged for. On January 1, 1913, the U. S. Post Office Department placed on sale a commemorative series of Panama-Pacific postage stamps in four denominations.

San Diego. (See Year Books, 1911, p. 247, and 1912, p. 216.) The Panama-California Exposition will be held in San Diego, California, from January 1 to December 31, 1915. The plan for the exposition embraced about 400 acres. All the buildings were ordered completed by January 1, 1914. All architecture and ensembles of architecture were in the Spanish colonial or mission style. The horticultural features consisted of over 130 acres of trees, shrubs, and vines contained in hot houses, lath houses, and specially constructed gardens. The horticultural exhibit itself was to be contained in the largest conservatory ever built, in which efforts were to be made to show a specimen of every plant known. The scope of the exposition was to cover the world, but with particular reference to Mexico and Central and South America. Of special interest was to be the greatest and most complete Indian congress and ethnological exhibit ever arranged, representing every tribe of North and South America.

Nashville. The first National Conservation Exposition was held in Knoxville, Tennessee, from September 1 to November 1, 1913. It had for its purpose the promotion of the highest development and best use of the natural resources of the country. There were eleven large exposition buildings and a number of smaller structures. The exhibits were divided into six general classes, namely: land, forests, water, wild animal life, minerals, and man. The exposition was formally opened by a wireless message from President Wilson, and other ceremonies.

New Orleans. A Southern States Exposition was in course of development to be opened in New Orleans, Louisiana, in the autumn of 1914. It was to be a permanent exposition of southern products, not only from the Southern States, but from all Latin-American countries, including Mexico and the Central and Southern American republics, and announced as its chief object to bind the countries of the western hemisphere in a closer commercial and social union. In 1913 plans and models were made, a site selected, and work begun on the grounds.

United States. For the celebration of the one hundredth anniversary of peace among English-speaking peoples, a national committee was organized in the United States with Theodore Roosevelt as chairman and John A. Stewart as secretary, and a British committee with Earl Grey as president and H. S. Perris as secretary, together with local committees in all of the larger cities of the Union. The celebrations were to begin on December 24, 1914, the anniversary of the signing of the Treaty of Ghent, and continue during 1915, culminating in a series of international congresses opening in New York and ending at the Panama Exposition in San Francisco in 1915. These congresses were to have for their purpose the concentration of the peace sentiments of the world upon the specific accomplishments derived through the Third Hague Peace Conference, and with general reference to the peace, prosperity, and welfare of the peoples of the world. The special features of the platform proposed for perpetuation of peace included the following items: (1) International monuments, possibly of identical design. (2) Educational features to include the endowment of chairs of British-American history; prizes for essays in schools, colleges, and universities; a history of the Century of Peace from which text books and school books may be prepared; and an annual peace day celebration. (3) Universal commemorative tablets. (4) Universal religious services of thanksgiving, to be held on a day to be selected. (5) Permanent monuments. (6) The early appointment of a preparatory committee as recommended by The Hague Conference. (7) Celebration in Ghent, after consultation with the municipality. (8) An international commemorative medal. (9) An international committee to be appointed with power to deal with such matters as may be referred to them of the several countries concerned. (10) An appeal for coöperation.

Plattsburg. In connection with the celebration of the Century of Peace to be held during 1914-15, a State commission was appointed in New York to arrange for the celebration of the one hundredth anniversary of the battle of Plattsburg, where Commodore McDonough commanded the naval forces on Lake Champlain that defeated the British fleet. Francis Lynde Stetson was chairman of the commission.

Manila. The third annual carnival with an exposition of the agricultural, industrial, and commercial exhibits from the various provinces was held as usual in Manila during the first week in February (3-10), 1913. A similar exposition will be held in 1914.

Ghent. A universal and international exhibition under the patronage of the king of the Belgians was held in Ghent, Belgium, from April until October, 1913. The grounds covered an area of about 250 acres and included the Citadel Park. The main buildings, which were large and imposing, comprised a palace of horticulture and of festivities, occupying a central site on the grounds, while the exhibits of the various industries were in a large palace, facing a wide avenue containing artistic fountains and flower-beds. The palace of fine arts was devoted to an international exhibit of paintings and sculptures and the important Congo exhibits were shown in the colonial section. Exhibits of Flemish agriculture were found in the "Village Moderne," where were also the more recent inventions in agricultural labor-saving machinery. "Old Flanders" was an artistic reproduction of the architecture and other picturesque characteristics of French, Belgian, and Dutch Flanders. The flower show, which was one of the most attractive features of the exhibition, was examined by a jury of 300 of the leading horticultural experts of the world. No fewer than sixty congresses were held in connection with the exhibition, and notably one of the Federated Societies of History and Archæology, during the meeting of which a monument to Hubert Van Eyck was unveiled. Among the foreign nations that sent exhibits were Great Britain, including New Zealand and India, Germany, France, China, Japan, Argentina, Brazil, Chile, Cuba, and Peru. There was no official representation by the United States, although Congress made an appropriation of $25,000 to encourage American exhibitors whose products were shown at Ghent. In comparison with the recent exhibitions in Liége in 1905 and in Brussels in 1910, that at Ghent was larger.

Among the foreign expositions announced to take place were:

London. An Anglo-American exposition was to be held beginning October, 1914, in Shepard's Bush, London, under the direction of Imre Kiralfy, to celebrate the century of peace, and the progress of the arts, sciences, and industries of the United States and the British Empire. The Duke of Connaught was to be patron and the Duke of Teck was to be president. Among the vice-presidents for America were Nicholas M. Butler, Joseph H. Choate, and Abbott L. Lowell. The general committee was to include 19 senators, 170 representatives, 38 governors, 45 mayors, 65 representatives of commercial bodies, and others. At the close of the exposition it was proposed to send the British exhibits *en masse* to the Panama-Pacific Exposition to be held in San Francisco during 1915.

Panama. The four hundredth anniversary of the discovery of the Pacific Ocean by Balboa was to be celebrated in Panama City by an exposition to be held from January 21 to May 31, 1914.

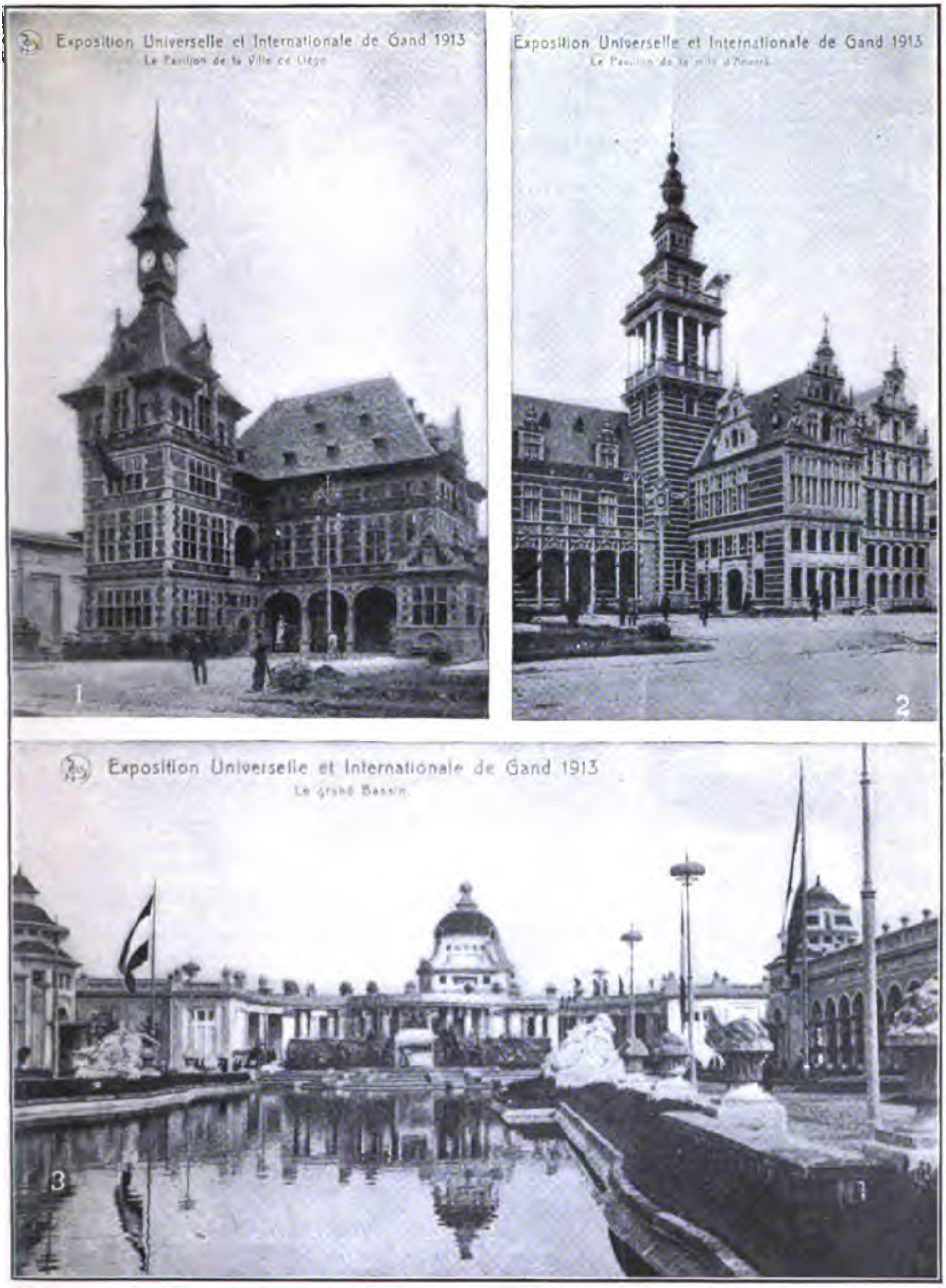
Miscellaneous. Other important gatherings during the year were: Leipzig Building and Trades Exposition held in Leipzig, Germany; First International Cinematograph Exhibition held in London; All-Russia Exhibition of Artisans and Industrial Concerns held in Moscow; Exposition of the National Wealth of Uruguay held in Montevideo in February; International Exhibition held in Elizabethville, Katanga, Belgian Congo, from April 8 to 30; International Congress of Agriculture held in Ghent from June 8 to 13; International Congress of Agricultural Women held in Ghent from June 13 to 15; International Congress of Home Training held in Ghent from June 15 to 17; Seventeenth International Congress of Medicine held in London from August 5 to 12; National and International Agricultural Exhibition held in The Hague from September 3 to 15; International Exhibition of Industrial Motors held in Parma, Italy, from June to October; and Exposition of International Hygiene held in Lima, Peru, from November 2 to December 31.

EXPRESS COMPANIES. See Parcel Post.

FABIAN SOCIETY. See Socialism, *Great Britain.*

FACTORY INVESTIGATING COMMISSION OF NEW YORK. This commission was created by the State legislature of 1911 and continued by that of 1912. Its chairman was Senator Robert F. Wagner; and its members included members of the State Assembly, Samuel Gompers, president of the American Federation of Labor; Mary E. Drier, president of the Women's Trade Union League of New York, and Abram I. Elkus, who acted as chief counsel. The work of this commission was very extensive and many of its findings little short of startling. This was especially true of its investigations into the fire hazards of factories throughout the State, the employment of children in up-State canneries, and in city tenements, and the night-work of women. It concluded its labors by recommending thirty-two bills to the legislature.

The most important of these bills provided for the reorganization of the State Department of Labor and for the creation of an industrial board. The commission held that labor legislation is of little value unless adequate governmental machinery is provided to enforce it; that the State Department of Labor, charged with protecting the health and safety of 1,500,000 workers in 45,000 establishments, had failed completely in its most important function of promoting an improvement of conditions; that ineffectiveness of administration has been due largely to the detailed and rigid character of laws depriving the department of all discretion. It advocated the European plan of broad and general statutes to be applied by administrative boards with power to make rules and regulations. Its bill therefore provided for an industrial board of five persons, including the commissioner of labor as chairman, with authority to formulate an industrial code, and rules and regulations supplementary to the statutes. These moreover could be different for different industries. The definite location of official responsibility was to be achieved by making the commissioner, with salary of $8000, alone responsible for the enforcement of all laws and rules. The first deputy commissioner, with salary of $5000, was to have charge of the bureau of inspection with its four divisions—factory,


Exposition Universelle et Internationale de Gand 1913
Le Pavillon de la Ville de Liége
1
Exposition Universelle et Internationale de Gand 1913
Le Pavillon de la Ville d'Anvers
2
Exposition Universelle et Internationale de Gand 1913
Le grand Bassin
3

THE UNIVERSAL AND INTERNATIONAL EXPOSITION AT GHENT, 1913

1. PAVILION OF THE CITY OF LIÉGE
2. PAVILION OF THE CITY OF ANTWERP
3. GENERAL VIEW SHOWING THE GRAND BASIN

home work, mercantile, and industrial hygiene. The State was to be divided into two districts, each under a chief, with salary of $4000; and not fewer than 125 inspectors were to be provided, their salaries to range from $1200 to $3500, according to grade. There were to be seven grades, including factory inspectors *per se* of three grades, investigators, supervising inspectors speaking five foreign languages, medical inspectors, and finally the experts constituting the division of industrial hygiene. Special attention was required of inspectors as to the physical examination and medical supervision of children. Moreover, by other bills medical inspection of all persons engaged in dangerous trades was authorized. The newest feature of the bureau of inspection was the division of industrial hygiene. This was to be composed of expert advisers and investigators under the direction of a physician as chief medical inspector at a salary of $4000; it must include also, at salaries of $3500, a chemical engineer, a mechanical engineer with expert knowledge of ventilation and accident prevention, and a civil engineer expert in building construction and fire prevention. The division of home-work inspection was also newly created and was deemed one of the most important on account of the great extent and the special difficulties impeding effective control of work in city tenements.

In addition to the bureau of inspection the commission would retain in the Labor Department the bureau of mediation and arbitration, and the bureau of industries and immigration; and it would expand the bureau of statistics into the bureau of statistics and information. This latter bureau would have divisions of industrial directory, industrial accidents and diseases, investigations, and printing and publications.

One of the most important subjects dealt with by the commission was home-work in city tenements. Its findings were fairly astonishing even to well-informed persons. They showed that home work is a serious blot on our industrial system; that all ordinary rules of health and sanitation are repeatedly violated; that the spread of contagious disease by home-work products is an ever-present menace; and that child labor and compulsory education laws are nullified by the employment of children in hundreds of scattered home work-shops. The commission was not optimistic as to the possibility of regulating home work by inspection and supervision, and pointed definitely to the possibility of more radical action in the future. It said that if proposed measures failed, "then all manufacturing in tenement houses should be prohibited in the interest of the home workers, of the dwellers in tenement houses, and of the public at large." In its bills the commission provided for the immediate prohibition of the manufacture of food products, children's and infants' wearing apparel, and of dolls and dolls' clothing. These prohibitions were based on grounds of public health, especially the liability of children to contagion, the object being to avoid the objection of unconstitutionality.

Five of the bills dealt with fire prevention. The commission's own inquiries had confirmed the judgment of other expert investigators that there were scores of thousands of employes in the State in serious danger of such catastrophes as the Asch building fire of 1911, and the Binghamton fire of 1913. The commission laid down two principles: (1) Every effort should be made to make fire impossible; (2) every employe should have adequate opportunity to escape in case of fire. Its bills therefore required numerous preventive measures, as the prohibition of smoking, fireproof storage for inflammable materials, guarding of gas-jets, fireproof enclosures for vertical openings between floors, and the installation of automatic sprinklers in buildings over seven stories in height. At the same time it was provided that the number of employes on any floor must be limited to the number that can safely escape therefrom; that stairways be straight and not less than 44 inches wide; that exits be specially safeguarded, and that fire alarm drills be instituted in all factories. Although these five bills covered a multitude of points, the industrial board was given power to amend and amplify as expert knowledge warranted.

Four bills related to the canneries, in which very deplorable conditions had been found. One of these bills was designed to prevent the further employment of children in sheds where fruits and vegetables are prepared for canning, such employment having been made possible by a ruling of a former attorney-general that such sheds did not come under the factory laws. The second limited the hours of women in canneries to 60 per week, but with the provision that the industrial board may permit any factory maintaining high-grade working conditions to employ women more than 60 hours per week. The third bill made it a crime to falsify factory time books. The fourth gave the Labor Department power to require factory labor camps to be so maintained as to provide adequate family privacy, and healthful sanitation.

The commission inquired also into the subject of industrial accidents. It found that in one year 51,000 accidents were reported to the Department of Labor from factories alone, and that 167 of these had been fatal. Its findings included many cases of indifference on the part of employers and carelessness on the part of workers. So also with reference to occupational poisonings and diseases. In some factories making paris green, carbonate of lead, lead batteries, and similar products, little or no precautions were found to protect the workers and the latter were found working with bare hands and without respirators. As a result, the commission discovered many cases of acute and chronic lead poisoning. In foundries and chemical factories workers were found exposed now to almost intolerable heat and now to sudden drafts, thus being predisposed to consumption. The commission would remedy such conditions not only by the rulings of the industrial board, but by a systematic campaign of education by means of lectures and bulletins. See also CHILD LABOR and SWEATING.

FAILURES, BUSINESS. See FINANCIAL REVIEW.

FALKLAND ISLANDS. A group of south Atlantic islands. A British colony. East Falkland has an area of 3000 square miles; West Falkland, 2300; there are besides about 100 smaller islands totaling 1200 square miles. Population in 1911, including the dependency of South Georgia, 3275. The entire acreage is devoted to sheep grazing. At the end of 1911 there were 711,367 sheep, 7800 cattle, 3500 horses, 60 swine. The whaling industry in the dependencies was productive in 1911 of about 238,490 barrels of oil. Imports 1911, £93,913 (£94,294 in 1910); exports, £471,156 (£308,930). Shipping entered and cleared, 315,278 tons. Revenue 1911, £35,349 (£26,773 in 1910); expenditure, £22,460 (£17,405). Stanley (905 innabitants) is the only town. South Georgia, the South Shetlands, Graham's Land, the South Orkneys, and the Sandwich group are dependencies. The colony is self-supporting, and has no debt. Governor, 1913, W. L. Allardyce, appointed 1909.

FEDERAL COUNCIL OF THE CHURCHES OF CHRIST IN AMERICA. An organization which held its first meeting in Philadelphia in 1908, and was largely the culmination of previous voluntary federative movements, the chief of which had been the Evangelical Alliance and the National Federation of Churches and Christian Workers. The important preliminary work leading up to the organization was accomplished by the Interchurch Conference on Federation, held in New York City in 1905—a body composed of official delegates of thirty denominations, convened through the initiative of the National Federation of Churches and Christian Workers. This conference adopted the constitution of the Federal Council, and transmitted it to the various denominations with the understanding that approval of two-thirds of them would give it full effect. This approval was secured early in 1908. The work undertaken by the council is indicated by the titles of its commissions. These are as follows: State and local federations, foreign missions, home missions, religious education, social service, evangelism, family life, Sunday observance, temperance, and peace and arbitration. One of the important results of the work during the first four years has been the development of a more intimate acquaintance and a better understanding between the great bodies in the council, through working together and through the larger view which each has gained of the other's work by means of this mutual relation. The second quadrennial meeting of the council was held in Chicago, Ill., in December, 1912. Among the subjects upon which reports have been made by the various commissions are the following: "The Country Church," by Charles O. Gill and Gifford Pinchot; "Continuous Toil and Continuous Toilers," Rev. C. S. Macfarland; and "The Church and Modern Industry." Reports have been made also on industrial subjects in several communities. The council in 1913 undertook the compilation of religious statistics under the supervision of Dr. H. K. Carroll. (See RELIGIOUS DENOMINATIONS.)

The denominations affiliated with the Federal Council are as follows: The Baptist Churches (North), the National Baptist Convention (colored), the Free Baptist Churches, the Christian Church, the Congregational Churches, the Disciples of Christ, the Friends, the German Evangelical Synod (the Evangelical Association), the Evangelical Lutheran Church (General Synod), the Mennonite Church, the Methodist Episcopal Church, the Methodist Episcopal Church (South), the African M. E. Church, the African M. E. Zion Church, the Colored M. E. Church in America, the Methodist Protestant Church, the Moravian Church, the Presbyterian Church in the U. S. A., the Presbyterian Church in U. S. (South), the Primitive Methodist Church, the Protestant Episcopal Church, the Reformed Church in America, the Reformed Church in United States, the Reformed Episcopal Church, the Reformed Presbyterian Church (General Synod), the Seventh Day Baptist Church, the United Brethren Church, the United Evangelical Church, the United Presbyterian Church, and the Welsh Presbyterian Church. The national office is in New York City.

FEDERATED MALAY STATES, THE. A British Malaysian protectorate composed of four states, as follows:

	Area Sq. m.	Pop. 1911	Imps.* 1911	Exps.* 1911
Perak	7,800	494,057	29,349,243	55,535,590
Selangor	3,156	294,035	30,196,834	47,433,952
Negri Sembilan	2,550	130,199	4,708,194	8,420,746
Pahang	14,000	118,708	2,277,768	4,890,639
Total.......	27,506	1,036,999	66,532,039	116,280,927

* In Straits Settlements dollars (1 SS $= $0.56776).

Length of railways operated by the Federated Malay States railways in the Straits Settlements and the Federated Malay States, 559 miles, with 120½ additional miles in the state of Johore. The main line extends from Prai (on the mainland opposite Penang) to Johore Bharu (opposite Singapore). Connection is made by ferry at each end. There are branch lines to Port Weld, Teluk Anson, Tronoh Mines, Batu Caves, Port Swettenham, Port Dickson, Kuala Pilah, Malacca, Triang, and Semantan. The East Coast Railway, connecting with the Siam railways near Kota Bharn, had reached Tembling, and its extension was still in progress, while the West Coast line was completed to the frontier at Perlis. The Pandanga-Baru line was open to Rapur, and a new line through the province of Wellesley and Kedah to the river Munda was under construction. The government had purchased the Singapore Railway and a small railway from Penang Town to Penang Hills was being made. Tin and rubber are the principal sources of wealth. Some gold is mined. Agricultural products include rice, gambier, pepper, coconuts, etc. Total revenue (1911), 35,056,544 dollars; expenditures, 25,202,749 dollars. The capital is Kuala Lumpur. High commissioner, (1913), Sir Arthur Young. See articles on the separate states.

FEDERATION OF LABOR, AMERICAN. See LABOR, AMERICAN FEDERATION OF.

FEMINISM. This term, originally French and only recently adopted into English, is applied to the theories that animate and support the movement of woman toward freedom, personal, political, and economic, and impel her to seek the opportunity for development and the full exercise of faculties in every field of human activity. From this point of view feminism may be regarded merely as humanism, which is being extended more slowly and with greater difficulty to women than to men, on account of the limitations imposed by tradition, customary habits of thought, and social institutions inherited from the past. Women in their struggle for freedom are confronted with all the hindrances which men in a similar position had to conquer, and in addition to this, they find in their path a vast number of special obstacles which are due not only to prejudice but to the inherent difficulties of their situation, their physical disabilities, temporary or permanent, the burden of child-bearing and -rearing, and a social system in the formation of which little thought was taken toward adapting it to the free activity of women as well as of men.

Although feminism as the individual aspiration toward greater freedom and development for women has found expression in all periods of history, it is only in the last two centuries that it has assumed the character of an organized movement, inspired by a democratic ideal and supported by a body of social theory. The feminism of to-day has its roots in the democratic awakening which was inspired by the writings of Locke, Voltaire, Rousseau, and other philosophers of the eighteenth century, who elevated the ideas of rationalism, individual liberty, and the brotherhood of man, and dethroned the old shiboleths of tradition, authority, and social inequality. Humanism, or the discovery of man as man, found its first free and full expression in these philosophers. And it was inevitable that the same theory would by its own logic sooner or later be extended to women. Not less important, however, for the emancipation of women than this spiritual change, was the economic transformation of society at the end of the eighteenth century through the introduction of machinery, the consequent development of the factory system, the introduction of steam and electric power, and of means of rapid communication, steamboats, railways, telegraphs. Through this industrial revolution women were taken out of the home and used in vast numbers in factories, shops, and stores, while the woman in the home surrendered most of the productive and economic functions that she had hitherto exercised to the new forces of factory production. Gradually a new economic world has developed for both men and women outside of the home, and has made them loose economic units bound less closely by tradition and social ties; while those women who have remained in the home begin to feel the lack of occupation and the parasitic position to which this new economic order has reduced them. Such is the feminism of to-day, drawing its strength mainly from these two sources, the liberalism of the eighteenth century and the economic philosophy of the nineteenth, and combining them into a new social philosophy which demands freer opportunity for all human beings as such, the fullest possible expression for the powers of the individual, and the social functioning of his faculties in their highest efficiency.

The feminist movement has often, though erroneously, been identified with the Socialist movement. The latter is based on the idea of a struggle of economically exploited classes for economic justice, whereas feminism includes many other currents, political, social, and cultural, as well as economic, and is a sex rather than a class phenomenon. In the case of the overworked and underpaid workingwoman, however, the economic question is of prime importance, and the Socialist, rather than the feminist, movement, the solvent. The feminist movement is not at present a well-organized movement as a whole, like certain other great social movements, but it finds expression in many kinds of organized and unorganized effort which are working for various practical reforms, especially for women, and with the same ultimate end in view—full freedom of expression and development for both sexes.

THE UNITED STATES. Feminists here have concentrated their attention on the attainment of the suffrage, and with great success (see WOMAN SUFFRAGE). They have already secured many of the things which European feminists are still striving for: full educational opportunities, admission to the bar in almost all States, permission to practice medicine, a fair approach to equality before the law in most States, and wide economic opportunities, the majority of gainful occupations being open to women. Outside of the suffrage, therefore, their demands have recently concentrated around the still further widening of economic opportunity, the abolition of all sex distinctions in economic and professional life, equal pay for equal work, higher professional training, and the right of women to a profession as well as to wifehood and motherhood. On this last point the struggle with the New York board of education over the right of married women and mothers to teach was highly significant. Two teachers who married were dismissed after the birth of children, and, in the case of Mrs. Peixotto, which was made a test case before the Supreme Court of the State, the appeal for reinstatement met with an adverse decision. An inquiry was made by the board of education into the efficiency of married teachers in general, with favorable results for the married teachers. A society called the League for the Civic Service of Women was formed in February, 1913, to arouse public opinion on the question, and mass-meetings were held. A Women's Civil Service League has also been formed to advocate equality of opportunity in the civil service for women and men. In several cities a movement is on foot for the appointment of women to the police force, and a struggle has taken place in New York City for the appointment of women as fire inspectors. The bureau of social hygiene, established in the winter of 1911, under the chairmanship of John D. Rockefeller, Jr., has issued two volumes of a series on modern prostitution. An extraordinary wave of interest in this question spread over the country during 1913. The success, financial as well as moral, of the production of Brieux's *Damaged Goods* was the prelude to a large number of other plays and moving-picture films dealing with the white slave traffic. General interest has also been aroused for the proposal of the teaching of sex hygiene to children in the schools, although it has met with violent opposition where—as in Chicago, for instance—attempts were made to put it into practical operation.

GREAT BRITAIN. The suffrage agitation has here, also, attracted the energy of most feminists. The report of the royal commission on divorce, two members of which were women, Lady Frances Balfour and Mrs. H. J. Tennent, recommended that the present privileged position of the husband in the divorce court should be abolished, and that adultery should be a sufficient cause for divorce in both cases. Further, the number of causes was recommended to be increased, and to include, in addition to adultery, desertion, cruelty, hopeless insanity, incurable drunkenness, and imprisonment under a commuted death sentence. Finally a less costly method of divorce than the present one was urged. England also was affected by the wave of indignation over revelations with regard to the white slave traffic.

In England, as in the United States, the teaching profession shows the decided tendency to fall into the hands of women. Women are also university professors, but are not yet admitted to theological schools nor to the bar, though they may study law and take the examinations. In January, 1913, by an overwhelming majority, the council of the English bar rejected a proposal to admit women to the bar. English women are not yet granted degrees, although they are allowed to study and take the higher examinations at the old universities of Oxford and Cambridge. In the newer universities in the cities they are admitted on the same basis as men. They have been admitted to the medical profession after a heated struggle. In this field the last year was marked by the founding of the South-London Hospital for Women, erected at a cost of $200,000, and "manned" and managed entirely by women. Two women now sit on the royal commission to inquire into civil service appointments. Women are very widely employed as factory inspectors, inspectors of schools and prisons, probation officers, and in various offices under the local government board and other public bodies. Among working women Miss Mary McArthur, secretary of the Women's Trade Union League, reports 300,000 organized working girls out of a total of five million of women and girls engaged in industrial occupations. Women do not benefit by a minimum-wage provision as do miners among men, though they are somewhat protected in the sweated trades; and they do not benefit by the fair-wages clause in the municipal service. The position of the English woman before the law is still very unequal. The feminist is demanding equal rights of the mother over her children, economic independence of the married woman, the raising of the age of consent above 16, and legal equality of sexes in inheritance and legal contracts.

Germany. The suffrage movement has been of less importance in Germany because of peculiar political conditions. The Socialist movement has attracted much of the energy of the feminists. Outside these two fields feminism has taken the form of a general economic advance. In municipal offices, such as poor relief, care of orphans, housing inspection, school administration, the number of women employed has grown from 12,000 to 19,000 in the interval 1910 to 1913. This public service demands a special training, which is now supplied by social women's schools organized by women. The economic demand for women's labor is increasing every year, and also the number of married working women. The large figures of the last census are far exceeded by those of the last year. Vocational training for the girls of the lower classes was promoted in this year by the general operation of the obligatory industrial continuation schools for girls. The government memorandum on the subject lays down the principle that the education of the female working population must be taken as systematically in hand as that of the male. In the handicrafts the position of women has been improved by the opening of public training and investigation. Accompanying this increased industrial activity, there has been a decline in the birth-rate which has created anxiety in some quarters. A woman's bank has been established exclusively for women, with a capital of about a million marks, and the avowed intention of strengthening the financial influence of women.

France. In France, original home of the feminist movement, the religious and social influences have restricted the advance of women. French women are active in business, have always had good educational opportunities, and have entered most occupations. The decoration of the Legion of Honor was conferred on several women, including Madame Sarah Bernhardt. Madame Curie, the discoverer of radium, holds the chair of physics at the Sorbonne. Feminists in France have now to struggle against state-regulated prostitution and the low legal position of women, although they were recently given full right to their own earnings, free from the control of the father for their children, legitimate or illegitimate.

Other Countries. In addition to the political gains made in Denmark and Norway, the women of the latter country have secured equal pay with men in the postal service. In the Slavonic countries, Bulgaria, Servia, and Rumania, the position of women is influenced by Mohammedan ideas, and the movement for their emancipation is working with the Socialist movement. In Servia, however, the women's club movement is widely spread and now includes 20,000 members. The condition of the working women in these countries is very bad. In Turkey a period of reaction has set in after the temporary freedom accorded to women at the time of the revolution, when they walked about without the veil and held public meetings. But the progressive women are not ceasing their efforts. In 1913 a new women's paper was established, the first in Turkey. In Japan the women are in no position of equality with the men, though they are engaged in industry in even greater numbers than men. Women have educational opportunities and are admitted to the practice of medicine and pharmacy. There are many Japanese women authors. Recently a new women's society was founded—the Society of the Truly New Women—in addition to two already existing similar organizations.

In China during the revolution the women formed "dare to die clubs"; smuggled in ammunition; fought the soldiers; and mounted the scaffold. The revolutionary clubs were later converted into suffrage clubs. The awakening of women in China to social and political interests has been indeed astonishing.

FENCING. The twentieth annual intercollegiate fencing tournament was won by Columbia. Cornell was second, and Pennsylvania third. The standing of the various teams entered was: Columbia won 27 bouts, lost 9; Cornell won 19, lost 17; Pennsylvania won 18, lost 18; U. S. Naval Academy won 16, lost 20; Harvard won 10, lost 26. In dual matches the U. S. Naval Academy defeated Columbia 5-4, and Pennsylvania 7-2. The U. S. Naval Academy was defeated by the New York Fencers' Club 2-7, and by Cornell 4-5. Columbia defeated Yale 5-4, Cornell 6-3, Pennsylvania 5-4, and Williams 7-2.

In the national championships held by the

American Fencers' League, P. J. Meylan of the Fencers' Club of New York, won with the foils, A. E. Sauer with the dueling swords, and A. G. Anderson of the New York A. C., with the sabres. The women's championship with the foils was won by Mrs. W. H. Dewar.

FERRIS, DR. ALBERT WARREN. See SARATOGA SPRINGS.

FERTILIZERS. It was reliably estimated that the world's consumption of commercial fertilizers by 1913 had reached a value of over $400,000,000 per annum. The use of fertilizers was very uneven in different parts of the world, but it seemed quite clear that those countries having the most intensive agriculture used fertilizers most freely. Thus Belgium, which was especially noted for its intensive farming, used on the average over 178 pounds of fertilizer per acre of cultivated area; Germany and the Netherlands 89 to 178 pounds; Great Britain, France, Italy, Denmark, Switzerland, and Australia 45 to 89 pounds; Ireland, Austria, Hungary, Spain, Portugal, Norway, Sweden, Japan, New Zealand, Tunis, Algeria, and the Dutch East Indies 9 to 45 pounds. Other countries except the United States consumed less than 9 pounds. The consumption in the United States varied widely in different sections. It was largest in the Southern States, where it varied from 45 to 89 pounds per acre of cultivated area. In the Northwestern States it varied from 9 to 45 pounds per acre, while in the rest of the country it averaged less than 9 pounds per acre. An organized movement to increase the use of fertilizers in the western United States developed decided strength during the year 1913. This movement was fostered largely by fertilizer manufacturers and allied interests.

The International Agricultural Institute at Rome estimated that the world used in 1911, the latest year for which complete statistics are available for this YEAR BOOK, 5,668,000 metric tons (2204.6 pounds each) of natural phosphate (mainly in the manufacture of superphosphates), 9,604,000 tons of superphosphate, 3,263,000 tons of Thomas slag, 3,240,000 tons of potash salts (equal to pure potash 848,400 tons), 2,313,450 tons of sodium nitrate, 1,050,000 tons of ammonium sulphate and 100,000 tons of synthetic nitrogen compounds. The institute recorded data for production and consumption of chemical fertilizers in over 60 different countries, including not only all the leading countries of the world agriculturally, but also a large proportion of those in which agriculture was less advanced. The most rapid advances in the use of fertilizers were recorded in some of the countries which had adopted the practice of applying commercial fertilizers at a comparatively recent date. Thus, Japan, which only a few years before had depended largely upon fish fertilizers, oil cakes, green manures, night soil, and various wastes and by-products to maintain the fertility of the soil, was reported to be using fertilizers to the value of $40,000,000 annually. Japan had become not only a large importer of fertilizing materials, particularly superphosphates, sodium nitrate, and ammonium sulphate, but was also rapidly developing a domestic fertilizer industry. Other countries which showed especially rapid increase in the use of fertilizers were Spain, Portugal, Italy, Russia, Tunis, Algeria, Australia, New Zealand, Chile, Uruguay, and Argentina. The Central and South American states as a rule used small amounts of fertilizers.

NITROGEN. The Chilean nitrate deposits continued to be the chief source of nitrogen in fertilizers. Despite alarming reports to the contrary it seemed quite certain from recent careful surveys of the situation that these deposits were capable of suppling the needs of the world for many decades to come. The representative of the Chilean nitrate interests in the United States asserted that "there are probably, in round numbers, 1,000,000,000 tons of nitrate in the deposits of Chile, and, without doubt, large supplies also exist on lands but incompletely prospected. The surveyed and certified tonnage opened up at the present time ready for extracting is fully 250,000,000 tons." Nevertheless, the manufacture of synthetic nitrogen compounds from the air was being developed with unabated activity, although reliable statistics of the production of these compounds were difficult to obtain.

The production of cyanamid in 1913 was estimated at 225,000 tons, consumed in the main as follows: United States 48,000 tons, Norway and Sweden 60,000 tons, Germany 40,000 tons, Italy 30,000 tons, Switzerland 10,000 tons, France and Japan 7500 tons each. Factories or the manufacture of cyanamid were in operation in Norway, Sweden, Italy, Switzerland, Germany, France, Japan, and Canada, and others were projected. The American factory (Niagara Falls, Ontario) when completed was to have a capacity of 50,000 tons per annum. The use of cyanamid in mixed fertilizers was increasing, although it had been found that it must be used with caution for this purpose since in mixtures with superphosphate it reduced the availability of the phosphoric acid.

The production of calcium nitrate, which was made principally at Notodden, Norway, was estimated at 140,000 metric tons for 1910. A recent development of this industry was the conversion of calcium nitrate into sodium and ammonium nitrates for agricultural purposes. Commercial application of processes for the manufacture of synthetic ammonia was also being made and the aluminum nitrid process was perfected but not tried on a commercial scale.

The increase in the production and consumption of ammonium sulphate continued unabated. The world's output in 1912 was: Germany, 465,000 metric tons; United Kingdom, 379,000 tons; United States, 155,000 tons; France, 68,500 tons; Belgium, 49,500 tons; other countries, 170,000 tons; making a total of 1,287,000 tons. The consumption in the United States was 215,000 tons. Germany's continued supremacy in production was attributed to the increasing use of by-products of coke ovens and producer gas plants in that country.

Few probably realized the extent and possibilities of the use of fish fertilizers. A recent consular and trade report showed that from 60,000 to 70,000 tons of fish fertilizer was produced on the Atlantic and Gulf coasts of the United States and about 3000 tons on the Pacific Coast, largely (about three-fifths) in Alaska. The Pacific Coast product was mainly used in Hawaii. A considerable amount of fish scrap was imported into the United States from Norway.

Slaughterhouse refuse (tankage and dried blood) was another impotrant source of nitrogenous fertilizer. It was estimated that the production of tankage in the United States in 1912 was about 100,000 tons, of dried blood 37,700 tons. In this case as in that of the fish fertilizer there was a very large waste which might have been profitably utilized.

PHOSPHATES. The world's production of phosphate in 1912 was about 6,000,000 metric tons, the principal producers being the United States, 2,973,332 long tons; Tunis, 1,650,000 metric tons; Algeria, 380,000 metric tons; France, 300,000 metric tons; Christmas, Ocean, and Naura islands, 450,000 metric tons; and Belgium, 120,000 metric tons. There was an increase in the phosphate mined in the United States, but a slight decrease in that marketed in 1912 as compared with the previous year. Florida produced 81 per cent. of the entire output of the United States, Tennessee 14.2 per cent. The United States exported 1,206,520 long tons of phosphate in 1912. Since the beginning of phosphate mining in South Carolina, in 1867, the marketed output of the United States had been 42,600,000 long tons, valued at $174,000,000. The imports of phosphatic materials by the United States in 1912 included bone dust, bone charcoal, bone ash, etc., 117,717 long tons, crude phosphate 28,821 tons, phosphatic slag 12,596 tons, besides small amounts of apatite and phosphatic guanos. See PHOSPHATE ROCK.

The world's production of Thomas (phosphatic) slag now exceeds 3,500,000 tons, two-thirds of the total output being produced in Germany. Although there was recently a considerable increase in the direct use of fine-ground crude phosphate as a fertilizer, by far the greater part of the output was still converted into superphosphate. There was a notable development of manufacture of superphosphate during the past year in Russia, Japan, Tunis, and Algeria.

POTASH. Notwithstanding the very active search in the United States and in Europe for other commercial sources of potash, none had yet been found which seriously menaced the supremacy of the German potash deposits. Further exploitations recently made but tended to confirm the former view that these deposits were practically inexhaustible. The sinking of potash mines in Germany rapidly increased despite the potash law, which was designed to limit and control the output. The number of mines increased from 50 to about 300 since the law went into effect. The product mined in 1912 was statedto have been worth about $15,000,000, and was probably increased $3,500,000 in 1913. The guaranteeing of a production quota at a fixed price, as was done in the potash law, apparently had simply operated to rapidly increase the number of new mines at the expense of the business of the old.

The investigations of brines and salt deposits of the United States, which were actively continued during the year 1913, had not revealed any other supplies of great commercial significance. There was some development on a small scale of the extraction of potash salts from the Pacific Coast kelps and considerable study was made of the possibilities of utilizing alunite, feldspars, and other potash minerals as sources of potash. It was the opinion of those who had most carefully investigated the subject that such of these sources of potash as were already known to exist in the United States could be exploited commercially at a profit and were capable of supplying the present and prospective needs of the country. It was maintained that a high-grade potassium chloride could be obtained from kelp with as little difficulty as from crude German potash salts, and at a cost that made extraction commercially practicable. The dried kelps of the Pacific Coast had been shown to contain from 20 to 35 per cent., or even more, of potassium chloride, and had been demonstrated to be very efficient fertilizers in this form.

LITERATURE. The most notable contributions to the literature of fertilizers during the year were: A bulletin of the International Institute of Agriculture at Rome, on the production and consumption of chemical fertilizer in the world; a book, *Farm Manures*, by C. E. Thorne, director of the Ohio Agricultural Experiment Station (New York, 1913); and another book, *Manures and Fertilizers* (New York, 1913), by H. J. Wheeler, formerly director of the Rhode Island Agricultural Experiment Station.

FICTION. See FRENCH LITERATURE; GERMAN LITERATURE; and LITERATURE, ENGLISH AND AMERICAN.

FIELD, STEPHEN DUDLEY. An American inventor, died May 18, 1913. He was born in Stockbridge, Mass., in 1846, and was the son of Jonathan Edward Fields, who was a brother of Cryus W. Field and David Dudley Field. He received an academic education His interest .from his earliest years had been in mechanics and in 1874 he invented the multiple call district telegraph box. Four years later he perfected the electric elevator, and in the year following built the first trolley car, capable of holding two people. The possibility of the trolley car as a means of transportation was not taken seriously at that time and when Mr. Field exhibited his trolley system at a business exposition in Chicago, it excited more amusement than interest. Ten years later, however, other inventors took up his ideas and began to invent improvements. Mr. Field sold his rights to the General Electric Company and the Westinghouse Company in 1896 to avoid the expense of litigation, as suits had been threatened by several persons in an effort to establish their claims to his invention. In 1880, soon after he had invented the trolley car, he made the first application of dynamo machines in telegraphy. Previous to this the electricity was stored in batteries which were cumbersome and expensive. In 1884 he invented the stock ticker. His last important invention was made in 1909. This was a cable quadruplex which permits four messages to be sent over a cable wire at the same time. Altogether he invented over 200 devices.

FIJI ISLANDS. A group of from 200 to 250 islands, rocks, and inlets in the south Pacific; a British crown colony. Including the dependency of Rotumah (14 square miles), the total area is 7435 square miles (Viti Levu, 4112; Vanua Levu, 2432; Taviuni, 217; Kadavu, 124; Koro, 58; Gau, 45; Ovalau, 43). Population (1911), 139,541 (80,008 males, 59.533 females); of whom 87,096 were Fijians, 40,286 Indians, 3707 Europeans, 2401 half-castes, 217 Rotumans; etc. Capital, Suva. Sugar, copra, and fruits are the chief products and exports. Exports of sugar in 1911, £797,274; copra, £294,245; fruits, £151,667. Total imports in 1911, £957,079 (£870,120 in 1910); exports, £1,276,207 (£1,005,818). Revenue and expenditure in 1911, £240,395 (£211,952 in 1910) and £265,347 (£236,661). Shipping entered and cleared, 584,835 tons. Australia, New Zealand, and Canada receive the majority of the trade. Governor, 1913, Sir Ernest Bickham Sweet-Escott (July, 1912).

FILTRATION. See Water Purification.

FINANCE. See sections so entitled under various countries, and under the States of the United States. See also Financial Review.

FINANCIAL REVIEW. The following article gives a general summary of business conditions during the year. Other articles related to topics here discussed are the following: Banks and Banking; National Banks; State Banks; Loan and Trust Companies; Savings Banks; Postal Savings Banks; Prices; Tariff; Trusts; Insurance; Agricultural Credit. See also Labor and various articles there referred to.

General Conditions. Following the panic of 1907 there was slow recovery in 1908 and marked revival of trade in 1909, accompanied by decided increases in stock market values. In 1910 this improvement received a marked check, and the year 1911 was one of caution and restraint. In 1912, however, the crops were large, pig-iron production exceeded all previous records, steel prices advanced, the unfilled orders of the United States Steel Corporation rose from 5,084,000 tons in June to 7,932,000 tons on December 31, railroad earnings gained substantially both in gross and net, bank clearings and building operations showed great gains, foreign trade increased 16 per cent. over 1911, and during the first nine months security prices rose considerably.

The trade recession which brought on the decline of stock values in the fourth quarter of 1912 created a somewhat pessimistic business outlook, which prevailed during a large part of 1913. While it was not distinctly a year of depression, conditions were somewhat less favorable than in 1912, and it was not a year of genuine prosperity. The total output of pig iron was about 31,000,000 tons, or 4.5 per cent. greater than the previous maximum in 1912. Production during the later months, however, declined. In the steel industry a climax was reached toward the end of 1912, when the steel corporation was running at 95 per cent. of its capacity. During the year, however, its unfilled orders declined from the great maximum noted above to 4,396,000 tons, December 1. Moreover, prices declined from $27.50 for steel billets in January to $20.50 in November. In December, little more than a half of the full manufacturing capacity of the steel industry was employed. Thousands of men were out of work. Nevertheless the corporation's net earnings were very great. They had reached $35,185,000 in the fourth quarter of 1912; they were $34,426,000 in the first quarter of 1913; $41,219,000 in the second quarter; and $38,450,000 in the third quarter. The volume of railroad traffic was large, gross earnings increased 6 per cent. over 1912; but on account of increased costs of operation, especially increased wages (see Arbitration and Conciliation, Industrial), net earnings declined slightly. Foreign trade for the first eleven months showed a total of $3,859,758,000, or 1.23 per cent. over the same period in 1912. Exports were 4.76 greater while imports were 3.33 per cent. less than in 1911. The excess of exports amounted to $642,100,000, or nearly one-third more than in the first eleven months of 1912. Bank clearings were somewhat smaller than in 1912, but this was explained entirely by the decline in speculation at New York. Commercial failures showed a very marked increase. National bank loans were slightly greater than in the preceding year. Building decreased in amount. Prices of securities declined, active stocks showing losses of more than 10 points, while standard bonds declined from two to five points. Immigration was greater than in any recent year.

Blue-Sky Laws. During 1913 a great many States, following the lead of Kansas in 1911, enacted what are known popularly as "blue-sky" laws. These are acts providing for the regulation and supervision of investment companies, or of the sale to the public of stocks and bonds of corporations. In Kansas the immediate cause of this legislation was the flotation of many fraudulent companies, claiming prospects and property in the oil and gas belt in the southeast corner of the State of Oklahoma. Other States have sought to protect innocent and unwary investors from gross deception by the attractive prospectuses and convincing agents of investment houses and corporations selling stocks and bonds of a fraudulent nature. The importance of such legislation was enforced by the statement of the Postmaster-General that in 1913 fully $120,000,000 was secured from the public by fake investment schemes.

The following States have enacted such laws: Arizona, Arkansas, California, Idaho, Iowa, Kansas, Maine, Michigan, Missouri, Montana, Nebraska, North Dakota, Ohio, Oregon, South Dakota, Vermont, West Virginia, and Wisconsin. The Kansas act was amended in 1913. In North Carolina a law of somewhat similar character was enacted. In Colorado a bill was vetoed by the governor. New Hampshire created a commission to investigate the subject. Many other State legislatures considered "blue-sky" bills. The Investment Bankers' Association has been active in securing the enactment of such laws as would be fair to both security dealers and the investing public and at the same time not prevent the flotation of companies involving reasonable business risk.

In some cases the administration of the act is entrusted to a previously existing authority, as the State banking commissioner, but as a rule a new board or commission was created. Thus in Michigan and South Dakota there was created a "securities commission"; in Montana an "investment commissioner"; in Oregon, a "corporation department." As a rule these laws require dealers in securities to have a State license and to file with the State authority information regarding stocks, bonds, and other securities sold, including copies of circulars and advertisements used to advance their sale. Frequently such a dealer must furnish a bond as a guaranty of good faith. Corporations selling their own securities must furnish information circulars and advertisements regarding them. The information required by laws of the more severe Kansas type is full and detailed, while in others of the more moderate Maine and Wisconsin type the information is of a more general nature. Punishment for violation is provided.

The constitutionality of the Arkansas, Iowa, Kansas, and Michigan acts was attacked. The Arkansas law was upheld by the State court, at least in so far as it applied to building and loan associations. In Iowa the case had not been advanced to decision. In Michigan the State court upheld the law and the case has been appealed to the Federal court. Following the attack of the Kansas act the author of the original law, former Bank Commissioner J. N. Dollie, formed the National Blue-Sky Protective Association to carry on legal defense of the statute. The arguments against such laws are that they deprive individuals of the right of freedom of contract, and that they delegate legislative power to administrative officials.

CROPS. The report of the Department of Agriculture issued in December showed that the aggregate value of farm products was nearly ten billion dollars, a value greater than in any preceding year. Of this sum $5,847,000,000 was cash income and the remainder the value of crops and livestock remaining on farms. It was estimated that 52 per cent. of the crops and 20 per cent. of the animals raised would remain on farms. The value of cereals alone was $2,896,000,000, corn being credited with $1,692,000,000, wheat with $610,000,000, and oats with $440,000,000. The value of the cotton crops was $798,000,000; hay, $797,000,000; potatoes, $228,000,000; sweet potatoes, $43,000,000; tobacco, $122,000,000; and sugar beets, $34,000,000. The value of dairy products was estimated at $814,000,000; of eggs and fowls at $578,000,000, and of wool, $51,000,000. The value of animals sold and slaughtered was placed at $3,650,000,000.

The total crop acreage was about 300,000,000, or practically the same as in the immediately preceding years. The aggregate value, however, was 3.8 per cent. greater than in 1912, and 7.6 per cent. greater than in 1911. The greater value was due primarily to higher prices, it being true that a yield below normal was worth more than in any preceding year. Thus the corn crop was 678,000,000 bushels, or 21 per cent. smaller than in 1912, but was valued at 11 per cent. more. Cotton also, though smaller in quantity, was higher in value. The quantitative yield of the six leading cereals was 17.7 per cent. below 1912 while the value was 7 per cent. greater. In spite of high prices there were exported in the fiscal year 1913 agricultural products valued at $1,123,000,000, an amount never before equaled, and ample proof that high food prices are not peculiar to the United States.

BANK CLEARINGS. By *Bradstreet's* reports the aggregate bank clearings of the year for the United States were $168,054,465,000, or 2.5 per cent. less than in 1912. This was a gain, however, of 6.2 per cent. over 1911, of 3.7 per cent. over 1910, of 2.4 per cent. over 1909, and of 28 per cent. over 1908. Clearings at New York totaled $94,634,281,000, an amount exceeded only in 1912, 1910, 1909, and 1906. That city's proportion of the country's total was 58.6 per cent., the smallest proportion since 1896. This was interpreted as due in part to the small volume of speculation at New York, and in part to the growing banking power of other cities. The clearings outside of New York were the largest on record and were greater in all but three months than in the corresponding months of 1912. Their total exceeded that of 1912 by 2.5 per cent. and that of 1911 by 11 per cent.

Sixteen Canadian cities reported bank clearings aggregating $9,060,320,000. This was slightly more than in 1912 and the greatest yet recorded.

STOCK MARKET. Dealings on the stock exchanges reflected the strain and absence of buoyancy in business. Total transactions on the New York exchange were the smallest in sixteen years, and new corporate securities issued were 27 per cent. less than in 1912. Important factors in this stagnation included the prolongation of the Balkan War and consequent fears of political and military conflict in Europe. There resulted hoarding and a scarcity of capital in the presence of increased borrowings in nearly all nations of the world. The Mexican situation, the financial unsettlement in South America, and silver speculation and bank failures in India were other disturbing factors. At home, while the volume of railway business was large, net earnings were seriously cut into by the demands of organized railway labor. See ARBITRATION AND CONCILIATION, INDUSTRIAL.) Moreover the reduction in dividend from eight to six per cent. by the New Haven, the passing of the New Haven dividend in December, and the receivership for the Frisco system created a pessimistic feeling regarding railway shares. The early months of the year were marked by a great volume of liquidation by foreign holders of American securities. This led to the exportation of $46,000,000 of gold in January and March, largely to Paris. The money market was helped by the tender of $50,000,000 of government deposits to banks of the agricultural States in the early summer. The average price of 50 stocks reached a minimum of 63 on June 10, or 16 points below the highest average in January. In some cases stocks approached the low levels of 1907-1908. Then came a rally which lasted into September. During the fall there was little change except for new low levels reached by New Haven and declines by some others. There was a decided improvement in the last weeks of the year.

Total transactions on the New York exchange amounted to 83,467,176 shares of stock and $501,514,520 par value of bonds. Stock transactions were the smallest since 1897 and 36 per cent. less than in 1912. Bond transactions were 26 per cent. less than in 1912 and bond prices declined, while new issues were made at higher rates. Thus New York City sold in May $45,000,000 bonds bearing 4½ per cent.; and railroads frequently resorted to short-term notes owing to the restricted bond market.

BUSINESS FAILURES. In number and volume, business failures were a good index of the prevailing conditions during the year. According to *Bradstreet's* the number of business failures was 14,553, a number not equaled since 1896, when the number was 15,094 and exceeded by only one other year, 1893. The total number in business who failed was .84 per cent. as compared with .82 per cent. in 1912, .77 in 1911, .72 in 1910, .76 in 1909, and .94 in 1908. The total was 15 per cent. greater than in 1911 and 25.7 per cent. greater than in 1910. Aggregate liabilities were $299,781,000 and total assets, $159,368,000. The liabilities were 46 per cent. greater than in 1912; 55 per cent. greater than in 1910 and 1911; and 108 per cent. greater than in 1909; but they were 1.3 per cent. less than in 1908 and 23.6 per cent. less than in 1907. The only other year showing greater liabilities was 1893. Every group of States showed increases in liabilities as compared with 1912. New York City furnished more than one-half the total increase in the number, but showed a decrease in liabilities. New England, on the other hand, showed an increase of only 4.8 per cent. in number, but of 157 per cent. in liabilities. During the year about 375 large failures, including a considerable number of manufacturing concerns and several big banks, occurred.

In Canada the number of failures was 1826, or 40 per cent. more than in 1912. Their aggregate liabilities were $16,629,000, or 35 per cent. more than in 1912. The liabilities had been exceeded only in 1883, 1884, 1887, 1894, and 1898.

FINLAND. A grand-duchy incorporated with the Russian Empire in September, 1809. The capital is Helsingfors.

Area, Population, etc. The area, including internal waters, is 373,604 sq. kilometers, or 144,249 sq. miles. The population, December 31, 1911, numbered 3,154,824—1,567,709 males and 1,587,115 females. According to religion, the population was divided as follows: 3,096,263 evangelicals, 52,728 Orthodox Greeks, 4666 Baptists, etc.; according to language (1910): 2,578,145 speaking Finnish, 338,961 Swedish, 7339 Russian, 1794 German, 1659 Lapp, etc. Marriages in 1911 numbered 18,735, births, 93,629, deaths, 54,039. Helsingfors had (1911) 153,642 inhabitants, Åbo 50,994, Tammerfors 45,791, Viborg 27,769.

Education is conducted on a high plane, and primary instruction is free and compulsory. Secondary and special schools are well attended. There is a university at Helsingfors, with 2512 students (518 women).

Production and Commerce. The main crops are rye, barley, oats, and potatoes. Saw mills and paper factories are the important industrial enterprises; great quantities of timber are exported. Dairy produce is also an article of export.

Trade by countries of origin and destination and totals for 1911 and 1912 are given in the following table, values in thousands of marks (gold):

	Imps.	Exps.		Imps.	Exps.
Germany	186,800	48,200	France	7,500	28,200
Russia	131,100	98,400	Spain	2,300	9,400
U. K.	68,300	87,600	Other	7,000	6,600
Denmark	25,200	11,700			
Swe.&Nor.	26,000	15,100	1912	469,900	337,800
Neth., etc.	15,700	32,600	1911	444,500	319,600

The more important articles of import in 1912, with values in thousands of marks, were cereals, 87,300; machinery, 28,000; iron and iron wares, 25,400; coffee, 24,400; ores, 20,000; sugar, 19,900; skins and leather, 18,900; cotton, 16,100; chemicals and dyes, 12,800; tobacco, 8400; cotton textiles, 8000; yarns, 8000; wine, 6300; petroleum, 6300; apparel, 5800; meats, 5400. The chief exports were timber, 166,200; paper and wood-pulp, 64,100; butter, 34,900; skins and leather, 12,600; wooden wares, 7200; fish, 5500; cotton textiles, 4800; iron, 1500. There entered at the ports, in 1912, 10,020 vessels of 2,929,793 tons. The merchant marine included, January 1, 1913, 3425 vessels, of 392,408 tons.

There were in operation in January, 1913, 3763 kilometers of railway line. Post offices, 2213.

Finance. For the year 1911, the revenue amounted to 159,421,716 marks and the expenditure to 159,956,052 marks. Revenue 1912, 172,344,012 marks, derived as follows: 72,707,339 marks from state domains and forests, railways, canals, etc.; 70,597,847 from indirect taxes; 7,891,181 from posts; 6,516,592 from direct taxes and other ordinary; extraordinary, 1,027,784. Expenditure, 1912, 166,262,020 marks, distributed as follows: 48,535,157 marks for communications, 16,187,325 for worship and instruction, 14,303,227 for civil administration, 13,160,761 military contribution to the Russian treasury, 8,474,149 debt charge, 7,469,332 for agriculture, etc., 7,193,113 for commerce and industry, 3,025,170 for justice and prisons; and other ordinary; extraordinary, 20,854,045. The public debt stood, January 1, 1913, at 174,640,334 marks.

Government. The Russian sovereign is the grand duke. He is represented by a resident governor-general (Lieut.-Gen. F. A. Seyn in 1913); the secretary of state (1913, Lieut.-Gen. W. Markov) resides at St. Petersburg. The Diet has 200 members, elected by universal suffrage for three years and nominally possesses large powers; actually it is little more than a figure-head. Under the present régime little of her guaranteed autonomy is left to Finland.

History. The Russification of Finland was thoroughly discussed in the 1912 Year Book. For developments of the policy during 1913, see Russia, *History*.

FINLEY, William Wilson. An American railway official, died November 25, 1913. Born in 1853 at Pass Christian, Miss., he began at the age of twenty his work in the railroad business, as stenographer to the vice-president of the New Orleans, Jackson, and Great Northern Railway. He was promoted by successive steps, and on various roads, becoming, in 1892, general traffic manager of the Great Northern and Montana Central road, serving until 1895. In the latter year he was appointed commissioner of the Southern States Passenger Association, and served for several months as third vice-president of the Southern Railway, and as second vice-president of the Great Northern Railway. In 1896 he was appointed second-vice-president of the Southern Railway, and in 1906 president. He was also president of the Mobile and Ohio Railroad, the Southern Railway in Mississippi, the Alabama Great Southern Railroad, the Cincinnati, New Orleans, and Texas Pacific Railway, the Georgia, Southern, and Florida Railway, the Virginia and Southwestern Railway, and the Northern Alabama Railway. In 1910 he received the degree of LL.D. from Tulane University. In the same year the University of Kentucky conferred upon him the same degree.

FIRE BOATS. See Fire Protection, *Progress*.

FIRE DRILLS. See Fire Protection.

FIRE PREVENTION. See FIRE PROTECTION.

FIRE PROTECTION. The accompanying tables, giving the statistics of fires in the United States, and in the principal foreign cities during the year 1912, have been compiled from the report of the committee on statistics and origin of fires of the National Board of Underwriters. These figures are of unusual interest and show that the United States and Canada with *per capita* losses by fire of $2.55 and $2.88 respectively in 1912 are far behind other great countries of the world, England showing a *per capita* of 54 cents, France of 84 cents, Germany of 20 cents, and Russia of 90 cents.

COMPARATIVE FIRE LOSSES

Country	Number of Cities Reporting Loss 1911	Number of Cities Reporting Loss 1912	Population 1911	Population 1912	Per Capita Loss 1911	Per Capita Loss 1912
U. S.	298	300	31,210,084	32,326,633	2.62	2.55
England	12	12	9,898,317	7,164,849	.53	.54

Country	Number of Cities Reporting Loss 1911	Number of Cities Reporting Loss 1912	Population 1911	Population 1912	Per Capita Loss 1911	Per Capita Loss 1912
France	3	6	3,518,493	4,425,696	.81	.84
Germany	8	9	2,306,354	2,659,575	.21	.20
Ireland	2	2	694,272	699,802	.58	.57
Scotland	2	2	484,190	485,091	.56	.49
Italy	6	3	1,373,995	282,082	.31	.90
Russia	2	2	3,483,291	3,485,583	1.17	.84
Austria	1	4	2,031,498	2,658,078	.08	.30
Canada	1	5	125,000	957,372	2.61	2.88
Belgium	..	1	....	166,445	...	.69
Norway	..	1	....	250,000	...	.69
Sweden	..	1	....	351,500	...	.13
Switzerl'd	..	1	....	140,000	...	.04
Netherl'ds	..	2	....	417,693	...	.12
Argentina	..	1	....	1,428,042	...	3.58

	Population	Total Loss	Per Cap.
1910—Whole Country	91,972,266	*214,003,300	$2.33
297 Cities	29,996,723	† 71,559,057	2.39
1911—Whole Country	93,927,000	*217,004,575	2.31
298 Cities	31,210,084	† 81,790,877	2.62
1912—Whole Country	95,419,503	*206,438,900	2.16
300 Cities	32,326,633	† 82,297,386	2.55

* Estimated. † Actual figures reported.

STATISTICS OF FIRES IN AMERICAN CITIES, 1912

Place	Area Sq. m.	Population	No. of Alarms	Total No. of Fires	Confined to Building or Place of Origin	Total Loss	No. of Fires per 1000 Pop.	Loss per Capita
New York	326.8	5,271,629	.....	15,638	.....	$9,065,673	2.96	$2.24
Chicago	195.5	2,381,700	13,910	11,533	11,168	6,162,561	4.84	2.59
Philadelphia	129.5	1,600,000	3,832	3,476	3,451	2,966,175	2.16	1.93
St. Louis	61.37	750,000	5,248	4,696	4,626	1,362,376	6.26	2.01
Boston	47.35	700,000	5,420	4,248	4,237	2,397,388	6.09	3.61
Cleveland	46	610,000	3,060	2,463	2,373	1,305,456	4.00	2.43
Baltimore	33	625,000	1,947	1,848	1,825	883,097	2.96	1.59
Pittsburgh	40.67	565,000	2,200	2,139	.....	....	3.79	2.12
Detroit	45	500,000	2,981	2,621	.....	....	5.24	2.69
Buffalo	42	425,000	2.087	2,006	1,980	804,548	4.72	1.89
San Francisco	38.87	435,000	1,837	1,787	1,570	773,749	4.11	2.38
Cincinnati	63.68	396,284	1,916	1,639	1,617	901,472	4 14	2.27
Newark	23.5	375,000	1,183	1,077	1,106	957,292	2.87	2.92
New Orleans	196.25	350,000	624	610	564	....	1.74	1.29
Washington	70	350,848	1,165	1,093	1,056	....	3.12	1.78
Los Angeles	121	350,000	1,833	1,609	1,542	....	4.60	2.43

STATISTICS OF FIRES IN EUROPEAN CITIES IN 1912

Place	Area Sq. m.	Population	No. of Alarms	Total No. of Fires	Confined to Building or Place of Origin	Total Loss	No. of Fires per 1000 Pop.	Loss per Capita	Loss per Fire
Great Britain—									
Birkenhead	6	135,740	106	102	101	$ 58,740	.75	$ .43	$ 576
Birmingham	21	840,202	1,048	808	796	408,200	.96	.49	505
Bolton	23.87	180,885	97	91	91	113,800	.50	.63	1,251
Bradford	35.7	289,393	150	136	136	....	.47	...	....
Cardiff	11.52	182,280	169	165	165	179,715	.91	.98	1,089
Lancaster	10	41,414	6	6	6	4,575	.14	.11	763
Leeds	33.71	445,550	301	286	284	557,365	.64	1.23	1,949
London	117	4,522,961	5,753	3,387	...	2,137,220	.75	.47	631
Middlesborough	21,65	106,200	56	50	49	102,540	.47	.97	2,051
Sheffield	36.97	466,408	272	244	244	155,830	.52	.33	638
Southampton	9.09	122,412	72	69	67	94,720	.56	.77	1,373
Torquay	6.03	38,500	16	16	13	23,695	.42	.62	1,481
York	5.76	82,297	34	33	33	7,735	.40	.09	234
Ireland—									
Belfast	25.8	390,000	256	228	...	264,275	.58	.68	1,115
Dublin	12.4	309,802	219	146	145	132,415	.47	.43	907
Scotland—									
Aberdeen	10.5	163,891	169	132	132	110,055	.81	.67	834
Edinburgh	17.84	321,200	522	441	432	127,120	1.37	.40	288
France—									
Bordeaux	.....	261,738	118	113	111	425,211	.43	1.62	3,763
Lyon †	17.37	523,800	258	237	216	933,170	.45	1.78	3,937
Marseilles	88.7	550,500	532	511	509	727,010	.93	1.32	1,413
Nancy	10.8	119,949	90	81	81	97,615	.67	.81	1,205
Paris	30.11	2,846,986	4,435	3,633	...	1,412,628	1.27	.50	389
Roubaix	4.96	122,723	75	73	71	96,000	.59	.78	1,315
Aachen	63.38	160,000	282	225	225	90,844	1.41	.57	404

Place	Area Sq. m.	Population	No. of Alarms	Total No. of Fires	Confined to Building or Place of Origin	Total Loss	No. of of Fires per 1000 Pop.	Loss per Capita	Loss per Fire
Germany—									
Berlin	24.5	2,094,806	3,449	2,880	2,852	....	1.37	....	....
Dresden	26	561,110	495	382	382	17,581	.68	.03	46
Flensburg	17.02	64,306	59	51	51	26,071	.79	.45	511
Frankfurt	9.68	69,778	125	63	62	16,127	.90	.23	256
Hamburg	32.3	990,000	2,300	1,655	1,648	207,730	1.67	.21	126
Hanover	38.32	302,384	404	346	345	112,408	1.14	.37	325
Kaiserlauten	35	54,662	32	32	29	14,145	.58	.26	442
Posen	.....	156,696	270	194	194	28,454	1.24	.18	147
Stuttgart	25.12	300,649	188	154	152	29,533	.51	.10	192
Italy—									
Brescia	22	84,393	121	114	...	5,450	1.36	.07	48
Messina	.....	127,689	122	81	81	231,200	.64	1.81	2,854
Ravenna	.....	70,000	....	35	35	18,000	.50	.23	514
Austria—									
Graz	8.35	152,000	128	93	93	175,400	.61	1.15	1,876
Lemberg	12.22	202,000	455	15	15	31,000	.07	.15	2,067
Trieste	13.82	239,540	457	356	355	220,839	1.48	.92	620
Vienna †	43.11	2,064,538	3,130	3,124	...	378,800	1.51	.18	121
Belgium—									
Ghent	10.4	166,445	174	131	131	114,365	.79	.69	873
Denmark—									
Copenhagen	27.13	467,000	663	476	475	....	1.02	....	....
Norway—									
Christiania	6.3	250,000	335	288	287	172,000	1.15	.69	597
Sweden—									
Stockholm	14	351,500	642	624	595	46,364	1.78	.13	74
Switzerland—									
Basel	14.32	140,000	62	72	...	5,785	.51	.04	80
Geneva	.....	105,000	142	108	...	....	1.03	....	....
Holland—									
Amsterdam	18	588,000	1,875	1,149	1,148	41,500	1.95	....	....
The Hague	16.1	294,693	753	281	281	7,892	.95	.14	147
Utrecht	8.85	123,000	99	99	99	5,116	.80	.06	80
Argentina—									
Buenos Aires	73.38	1,428,042	559	546	483	314	.38	3.58	9,187
Russia—									
Moscow	35.5	1,575,583	1,166	1,160	1,095	1,728,190	.74	1.10	1,490
St. Petersburg	123	1,910,000	2,284	989	...	1,194,570	.52	.62	1,208
Australia—									
Melbourne	.....	570,000	1,090	1,090	...	....	1.91	....	....
Canada—									
Hamilton	9.97	88,922	422	181	172	167,281	2.04	1.88	924
London	7	52,730	172	130	130	55,533	2.47	1.05	427
St. John's City......	4	32,292	72	70	50	....	2.14	....	....
Toronto	30	475,296	1,670	1,488	1,477	1,132,283	3.13	2.38	762
Vancouver	16.89	140,424	588	225	221	625,346	1.60	4.45	2,779
Winnipeg	24	200,000	305	305	...	775,486	1.52	3.88	2,542

† Figures for 1911.

The fire losses in the United States and Canada during the thirty-seven years ended with 1913 aggregated $5,631,389,675, or an annual average of $152,199,721. The accompanying table, giving the losses by years during the years 1877-1913, shows the steady general upward tendency of the country's fire waste. It will be noted that since 1906, the year of the San Francisco conflagration, the annual fire loss has stood at well above two hundred million dollars:

1913	$224,723,350	1894	$128,246,400
1912	225,320,900	1893	156,445,875
1911	234,337,250	1892	151,516,000
1910	234,470,650	1891	143,764,000
1909	203,649,200	1890	108,993,700
1908	238,562,250	1889	123,046,800
1907	215,671,250	1888	110,885,600
1906	459,710,000	1887	120,283,000
1905	175,193,800	1886	104,924,700
1904	252,554,050	1885	102,818,700
1903	156,195,700	1884	110,008,600
1902	149,260,850	1883	110,149,000
1901	164,347,450	1882	84,505,000
1900	163,362,250	1881	81,280,000
1899	136,773,200	1880	74,643,400
1898	119,650,500	1879	77,703,700
1897	110,319,650	1878	34,315,900
1896	115,655,500	1877	68,265,800
1895	129,835,700		
Total for 37 years.................			$5,631,389,675

AMERICAN FIRE LOSSES IN 1913. The losses by fire in the United States and Canada during 1913, as recorded by the *Journal of Commerce and Commercial Bulletin*, of New York City, reached an aggregate of $224,723,350, as compared with $225,320,900 in 1912, $234,337,250 in 1911, and $234,470,650 in 1910, or the most favorable record since 1902. The first five months of the year 1913, gave promise of a material reduction in the fire waste, but the four summer months, during which unusual dry weather was experienced, developed very serious losses, which more than offset the favorable conditions prevailing earlier.

There were no general conflagrations of any magnitude during the year in the United States, the largest fire being a general fire involving several blocks at Hot Springs, Ark., in September, which caused a property loss of about $2,225,000. There were, however, during the year, forty-four fires, each of which caused an estimated property damage of $500,000 or over, and these, as recorded by the *Journal of Commerce*, are listed below. The popular movement for fire prevention received no little legislative encouragement during 1913, and in many States laws were in force which were enacted in 1912, with a view of diminishing the number of preventable fires. These provided for fire marshals, inspection, proper conditions of maintenance, and like measures. Whether it was too early to look for their effect or not, the destruction of property by fire showed only a very moderate diminution.

Chicago, Ill., business block	$ 500,000
Calgary, Alberta, meat-packing plant	910,000
Savannah, Ga., wharf and railroad property	1,100,000
Craigmont, Ont., corundum mills	500,000
Quincy, Ill., tablet works & paper plant	500,000
Columbus, Ga., cotton compress & others	940,000
Argenta, Ark., cotton compress	500,000
Hot Springs, Ark., six business houses	500,000
Vandalia, Ill., roofing factory	582,000
Dayton, Ohio, several business houses	500,000
Everet, Wash., iron works	500,000
Chicago, Ill., packing plant	500,000
Lansing, Mich., twine factory	500,000
Grenta, Man., hotel and business block	600,000
Buffalo, N. Y., grain elevator and other	500,000
Springfield, Mo., buildings in public sq.	700,000
Prince Albert, Sask., lumber plant	550,000
Chicago, Ill., tanning plant	500,000
Welland, Ont., court house and other	500,000
Long Island City, N. Y., paper box plant and other	1,000,000
Buffalo, N. Y., flour mill and grain elevator	600,000
Dee, Ore., sawmill and lumber	500,000
Montreal, Que., church building & other	500,000
Michigan City, Ind., car factory & other	750,000
Indianapolis, Ind., hardware store and other	500,000
Weymouth, Mass., chemical plant	500,000
La Grande, Ore., lumber yards	500,000
Bangor, Pa., iron foundry and other	750,000
Athabaska, Alberta, general store	750,000
Jersey City, N. J., cooperage and other	540,000
Teague, Tex., railroad shops	500,000
Bay Point, Cal., lumber yards	575,000
Hot Springs, Ark., conflagration	2,225,000
Bopohoma, Okla., lumber plant and village	500,000
Chicago, Ill., boiler shop and others	500,000
Buffalo, N. Y., coffee warehouse and others	500,000
Kansas City, Kan., flour mills & others	600,000
East St. Louis, Mo., railroad terminal and grain elevator	600,000
Milwaukee, Wis., rubber works & others	500,000
Philadelphia, Pa., chair factory & others	500,000
Akron, Ohio, business block	500,000
Port Huron, Mich., railroad shops	750,000
New York City, glove factory and other	830,000
Cohoes, N. Y., knitting mill and other	596,000
Peoria, Ill., storage warehouse	660,000

MOTOR APPARATUS. The annual meeting and convention of the International Association of Fire Engineers was held in New York City during the first week in September, and was noteworthy for the display and test of new motor apparatus and for the papers dealing with questions of modern fire protection and especially incendiarism. Probably the most extensive test of motor fire apparatus ever undertaken was conducted on the pier at the foot of 53d Street, at the North River, under the auspices of the New York fire department and a committee of engineers of the National Board of Fire Underwriters. These tests were arranged for 12 hours and were designed to test the capacity and efficiency of the various engines at different pressures. Eleven machines were entered for test, and seven were in service at the end of the twelve hours. There were, as might be expected, incidental break downs during the test, but on the whole, the machines performed satisfactorily and showed that distinct progress had been made in the development of a few years and that the defects were largely mechanical and could readily be overcome. It was interesting to note that most of the machines entered gave at least their rated capacities, and several did better. Furthermore, there was an increase in capacity more nearly approaching that of the largest size steam fire engines than hitherto had been attempted, one motor engine in particular, discharging 636 gallons per minute at a pump pressure of 269 pounds, 748 gallons per minute at a pump pressure of 209 pounds, and 1419 gallons at a pump pressure of 130 pounds. In connection with motor apparatus the leading cities of the United States were gradually adding to their equipment motor propelled apparatus of all kinds and were using tractors to haul existing steam fire engines and ladder trucks. In the larger cities a tendency towards standardization was being manifested and in New York a large number of front-drive tractors were provided for steam fire engines and hook and ladder trucks.

PROGRESS. Towards the end of the year 1913 provision was made for wireless communication between the fleet of fire boats of the New York City fire department and the central bureau of the fire alarm telegraph at fire headquarters, 157 East 67th Street. Beginning with the fire boat *James Duane*, a receiving and sending apparatus was fitted on the fire boats and an installation at fire headquarters of aerial wires on the roof. In this way it was possible to receive calls from incoming ships with fires in the cargo and transmit them immediately to the fire boats, or to maintain communication with the fire boats after they had left their station in response to an alarm, or for other purposes. As the fire boats respond to alarms just as an ordinary engine company, and many of these are ascertained to be false, it was believed that the use of wireless to recall the boats would be an economy of fuel and would save the long trips along the water front that often were required.

Progress was made during the year with the much needed reconstruction of the New York City fire alarm telegraph. Work was prosecuted on the various new central stations in the different boroughs, that in Manhattan being located in the centre of Central Park on the Transverse Road. New fire alarm boxes were provided in many cases and the underground circuits were improved and extended with a view to their utilization in the new system when completed. A new type of box was developed by the chief electrical engineer of the department, Leonard E. Day, and his assistant, Mr. Faller, and this box embodied all of the features of previous apparatus of this type, as well as advantages of its own. See FORESTRY, and INSURANCE.

FISH AND FISHERIES. The last report of the commissioner of fisheries of the United States, available at the time of preparation of this record, was dated December 2, 1912, and was for the year ending June, 1912. For the calendar year 1911, the United States, including Alaska, but not including the insular possessions, had 225,000 persons engaged in the fisheries, using 7500 vessels, with a total capital investment of $65,000,000. The first value of the yield was $76,000,000. These fisheries were more valuable than those of any other country with the exception of Japan. The mackerel fisheries were reported as having reached a lower state than ever before, while menhaden were very important, establishments for the manufacture of oil and fertilizers from these fish being more numerous than ever before. In Maine the lobster fishery was more valuable than in all other States combined, and the numbers seem to be increasing as a result of protection and artificial propagation. The most valuable single fish in New England was the cod, though a very large catch of swordfish was reported for the year, off the New England coast. The oyster industry of the United States was larger than that of all other countries combined, a detailed statement of recent statistics being as follows:

	Bushels	Value
New England States for 1910.	5,827,821	$ 3,589,719
Mid-Atlantic States for 1911..	23,189,557	10,899,457
South Atlantic States for 1910	1,700,998	364,184
Gulf States for 1910..........	6,226,141	1,476,966
Pacific States for 1908........	309,443	693,700

The whale fisheries were reported as declining in value and will eventually die out, unless some international agreement can be made as to their protection on the high seas.

The value of fish landed at the port of Boston was as follows:

	Pounds	Value
From United States.........	109,226,119	$2,803,462
" Newfoundland..........	30,943,353	877,462
" Canadian provinces...	44,283,895	1,343,716

The commissioner reported that the propagation and distribution of food and game fishes was regarded as of the utmost importance by the bureau, and that 40 species of food and game fishes and of lobsters were propagated during the year. The output of fry for the year was 3,426,000,000; of eggs, 229,600,000; of fingerlings, yearlings, and adults, 32,214,000. There were received during the year 9446 applications for stock, mostly for artificial and private ponds. Earlier shipments of rainbow trout to Europe had not proved successful, due to deterioration from inbreeding, and hence new supplies were sent during the year to Austria, France, Germany, Japan, and Portugal. Brook trout were sent to Japan, and black bass to Sweden.

The international agreement concerning the seal fisheries went into effect in the spring of 1912. This limited the killing to young males with skins weighing not less than 5 pounds, green. No killing was permitted until 1000 three year olds were reserved. During the year, 12,002 skins were shipped to London, and sold for $385,862.28. By an order issued later than the date of this report, these skins in future, were to be sold in St. Louis, rather than in London. According to the Associated Press dispatches, the sale held in December, 1913, brought in approximately $80,000. In this sale, there were 1898 seals, worth $60,000, 405 blue fox worth $17,324, and 31 white fox worth $458. The blue fox herd on the Pribilof Islands were managed for the first time by the United States in 1910-11. These skins are valuable, some selling for as much as $85 apiece. The proceeds from this source for the year (1912) were $15,096.58. The total appropriation for the bureau for the year was $1,132,990.

FISHERIES. See section so entitled under various countries and States of the United States.

FISK UNIVERSITY. An institution of higher education for the colored race, at Nashville, Tenn., founded in 1866. The enrollment in all the departments of the university in the autumn of 1913 was 482. Of these, 196 were in the college department, 146 in the preparatory school, and 140 in the training school. The faculty numbered 43. In 1913 former Dean H. H. Wright retired on a Carnegie pension. Dr. C. W. Morrow was appointed dean in his place. C. C. Poindexter, president of biology and agronomy, died in 1913, and J. T. Carruthers was appointed in his place. Mrs. Louise C. Berry was appointed dean of the women. During the year the university received a single gift of $20,000, and several smaller ones. The gross receipts from benefactions were $42,705. The productive funds of the university at the end of the year 1912-13 amounted to $58,395, and the income to $60,990. The library contains about 10,000 volumes.

FITZ, Reginald Heber. An American physician and educator, died September 30, 1913. He was born in Chelsea, Mass., in 1843, and graduated from Harvard University in 1864. Two years later he received the degree of A.M. from that university. He studied medicine at the Harvard Medical School, taking his degree in 1868. In 1870-73 he was instructor of pathology at the Harvard Medical School; assistant professor in 1873; professor in 1878; Chattuck professor in 1879; from 1892-1908 Hersey professor of the theory and practice of physic. He retired with the title of emeritus professor in 1908. Dr. Fitz was credited with making the discovery of appendicitis. He was the author with Dr. Horatio C. Wood of the *Practice of Medicine* (1897). He received the degree of LL. D. from Harvard in 1905.

FLAGLER, Henry M. An American capitalist, died May 20, 1913. He was born in Canandaigua, N. Y., in 1830. His father was a Presbyterian minister whose salary was barely sufficient to keep his family in the necessities of life, and the boy when fourteen years of age resolved to earn his own living. Starting in search of an opportunity, he landed finally at Republic, O., and was engaged by a storekeeper at a salary of five dollars a week. After some years he had established a grain business at Bellevue, O. During the carrying on of this business he shipped many carloads of wheat to John D. Rockefeller, then a Cleveland commission merchant. Rockefeller and his son William had at this time started a small oil refinery in Cleveland, and in 1867 they built a second refinery. Flagler, who was furnished capital by a relative's wife, bought a partnership in this concern, which became Rockefeller, Andrews & Flagler. The business prospered with the acquirement of several other refineries which had been built for the purpose of competition, but which the owners were obliged to sell to the Rockefeller Company. In 1870 the partnership closed, and the Standard Oil Company was organized. Mr. Flagler had charge of the details of the transportation for the company. From this time Mr. Flagler's commercial career is identified with the Standard Oil Company. He was often called the "second power" of the company, and up to June, 1908, was its vice-president and director. Mr. Flagler is best known to public life, not as one of the great powers of the Standard Oil Company, but as the developer of the east coast of Florida as a summer resort. He first became interested in the possibilities of what was then the wilderness of Florida for fruit growing, and he decided to open up this country by means of railroads. With this end in view he acquired, in 1886, the Jacksonville, St. Augustine, and Halifax River Railroad. Two years later he bought the Augustine and Palatka Railroad, and the St. Johns and Halifax, which ran through Daytona, and a narrow gauge road. Up to 1892 he devoted his energy to improving these roads. In that year he began the construction of a line south from Daytona for the purpose of opening up the wilderness. In that year thousands of orange trees were planted along the line of the railroad, but these were blighted by the frosts. Mr. Flagler then decided to run his road beyond reach of frosts, and in 1894 he carried it as far as Palm Beach, but the frosts again worked havoc among the orange trees and the road was extended in 1896 to Miami. In 1905, when the Panama Canal was assured, Mr. Flagler conceived the idea of running his railroad to Key West. This road was completed in 1912, forming the East Coast of Florida Railroad. It is constructed to a large extent across the keys or islands which form a large part of that portion of the State, and its construction was one of the most remarkable feats of railway engineering ever undertaken. In addition to the construction of railroads and the development of fruit lands Mr. Flagler built several of the largest hotels in the United States. These include the Palm Beach Hotel, the Ponce de Leon and Alcazar at St. Augustine. Mr. Flagler is said to have spent over $40,000,000 in Florida, of which $18,000,000 was spent in developing railroads, $12,000,000 in hotels, and $1,000,000 in steamboat and other enterprises. He was a director in many important financial institutions and railway companies, including the Western Union Telegraph Company, the Chicago, Rock Island, and Pacific Railway, the Minnesota Iron Company, the Duluth and Iron Range Railroad, and the International Bank Note Company. He left a fortune estimated at between $50,000,000 and $60,000,000. His only son, H. H. Flagler, received but an insignificant portion of the estate.

FLAX. The world's production of flaxseed in 1913 was estimated at 120,000,000 bushels, as compared with 133,000,000 bushels in 1912. In India, where a long-continued drouth prevented seeding at the proper time and thus reduced the acreage, the crop was about 20 per cent. less than the year before. Russia produced about 25,000,000 bushels, yield and quality being better than the previous year. Argentina devoted 4,391,000 acres to flaxseed, and a favorable season raised the total production to above that of the previous year. As reported by the Department of Agriculture the United States produced a crop of 17,853,000 bushels on 2,291,000 acres, making an average yield of 7.8 bushels per acre. As compared with 1912, a year of very large production, this represented a decrease of 10,220,000 bushels and of 560,000 acres, the rate of yield being diminished by 2 bushels. Among the 11 producing States, all showing reduced yields except Wisconsin, North Dakota led with 7,200,000 bushels, followed by Montana with 3,600,000, Minnesota with 3,150,000, and South Dakota with 3,060,000 bushels. North Dakota produced 4,886,000 bushels; Montana, 1,920,000; Minnesota, 971,000; and South Dakota, 2,263,000 bushels less than in 1912. The shortage was due mainly to a prolonged drouth. The Canadian crop was reported at 15,168,000 bushels, against 21,682,000 bushels in 1912. The farm value of the crop of the United States on December 1 at $1.20 per bushel was $21,399,000, the lowest during the past 10 years. With the surplus carried over from 1912 the world's supply for the commercial year is adequate. Owing to greater demand and higher prices European countries gave more attention during the past year to fibre production.

FLOOD. See OHIO VALLEY FLOOD.

FLORIDA. POPULATION. The population of the State in 1910 was 752,619. According to the estimates of the Bureau of the Census, made in 1913, the population then was 825,420.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	675,000	10,125,000	$3,320,000
	1912	655,000	8,515,000	6,727,000
Oats	1913	50,000	900,000	630,000
	1912	43,000	740,000	518,000
Rice	1913	400,000	10,000	6,000
	1912	600,000	15,000	14,000
Potatoes	1913	12,000	912,000	1,056,000
	1912	11,000	1,023,000	1,125,000
Hay	1913	47,000	*a* 63,000	1,147,000
	1912	43,000	54,000	977,000
Tobacco	1913	4,000	*b* 4,000,000	1,240,000
	1912	3,100	2,604,000	781,000
Cotton	1913	218,000	*c* 68,000	5,564,000
	1912	224,000	52,895	3,980,000

a Tons. *b* Pounds. *c* Bales.

MINERAL PRODUCTION. Florida is important as a producer of minerals on account of the large quantity of phosphate rock mined in the State. This constitutes over 90 per cent. of the value of the total output. In 1912 the total production of phosphate rock in the State was 2,406,899 long tons, valued at $9,461,297. The State is also first in the production of Fuller's earth. It leads in the production of ball clay, a very plastic clay used in giving plasticity to the body of high-grade products. The other mineral products of the State are sand, lime, brick, mineral waters, sand and gravel, and stone. The total value of the mineral products of the State in 1912 was $10,272,594, compared with $10,250,228 in 1911.

FINANCE. The report of the State treasurer showed a balance at the beginning of the fiscal year 1913 of $1,011,535. The receipts during the period were $3,681,298. The disbursements amounted to $3,224,999, leaving a balance at the end of the fiscal year of $1,467,832. The chief disbursements were for the State departments, for education, and for State institutions. The public debt, consisting solely of refunded bonds, amounted at the end of the fiscal year of $701,567.

COMMUNICATIONS. The total number of lines of main track in the State on June 30, 1912, was 3596, and the total mileage of all tracks was 5423. The licensed railroads in or passing through the State are the Seaboard Air Line, 939 miles; the Atlantic Coast Line, 877 miles; the Florida East Coast Railroad, 522 miles; the Louisville and Nashville, 216 miles; and the Apalachicola Northern Railway, 102 miles.

EDUCATION. The approximate school population of the State in 1913, was 256,418. The total enrollment in 1912 and 1913 was 166,671, and the average daily attendance was 118,465. The female teachers numbered 3514 and the male teachers 1018. The average salary of male teachers was $67.47, and of female teachers $39.21, monthly.

CHARITIES AND CORRECTIONS. The institutions supported by the State include the Deaf, Dumb, and Blind Institute, Confederate Soldiers' Home, the State Asylums for the Insane, the State prisons, and the State Industrial School for Boys. The latter is really two schools, one for white and the other for colored boys. The average number of inmates in this institution is from 175 to 200.

POLITICS AND GOVERNMENT. The legislature met in 1913, and passed several important measures. The term of the governor expires in January, 1917. The next State election is November 3, 1914. An equal suffrage amendment was defeated in the House of Representatives on May 2.

The restrictive legislation, which prevented the Japanese from holding land in California, resulted in a number of Japanese seeking to acquire property in Florida. Lands in that State owned by William S. Jennings, a former governor, were offered to the Japanese, who were previously residents of California. These lands were about 45 miles from Jacksonville, in Clay and Duval counties. Objection was at once made to the acquisition of these lands by Japanese. Representative Clark, one of the Florida members of the House, addressed to the governor of the State a letter urging him to call a special session of the legislature, for the enactment of a law similar to that passed in California, prohibiting the ownership of land by aliens. In this letter he said: "Japan is looking for territory. It is her purpose to colonize parts of Mexico, and it is also her purpose to place in the United States as many Japanese as we will permit to live here, her ultimate purpose being war with this country." Following this discussion the promoters of the movement withdrew their offer, and no further effort has been made to colonize Japanese in Florida. The legislature of 1913 authorized the State board of commissioners of the Everglades drainage district to issue bonds to the amount of six million dollars to continue the work of reclamation of the Everglades. A survey of the project has been completed under the supervision of Isham Randolph, and work on the drainage canals is going steadily forward.

LEGISLATION. The legislature met in 1913, and the most important measure passed was a general primary election law (see ELECTORAL REFORM). This law contains first- and second-choice features.

STATE GOVERNMENT. Governor, Park M. Trammell; Secretary of State, H. C. Crawford; Treasurer, J. C. Luning; Comptroller, W. V. Knott; Attorney-General, Thomas F. West; Auditor, Ernest Amos; Adjutant-General, J. C. R. Foster; Superintendent of Public Instruction, W. N. Sheats; Commissioner of Agriculture, W. A. McRea—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, J. B. Whitfield; Justices, W. A. Hocker, R. F. Taylor, T. M. Shackleford, and R. S. Cockrell; Clerk, Milton H. Mabry—all Democrats.

STATE LEGISLATURE, 1913. The legislature is: Senate, Democrats, 32; House, Democrats, 71.

The State representatives in Congress will be found in the article UNITED STATES, section *Congress*.

FLORIDA. UNIVERSITY OF. A State institution for higher learning at Gainesville, Fla., founded in 1905. The total number of students enrolled in all departments in the autumn of 1913 was 348. The faculty numbered sixty-one. There were six members added to the faculty during the year. The university received $40,000 for a school of education from the Peabody education board. The income amounts to about $110,000 a year, and the endowment to about $158,000. The library contains about 20,000 volumes. The president is A. A. Murphree, LL.D.

FLOUR. See FOOD AND NUTRITION.

FLY. See ENTOMOLOGY.

FOOD AND NUTRITION. FOOD INSPECTION. The United States food and drugs act of 1906 was amended by requiring the labeling of foods in packages to show the approximate net quantity of the contents. Exemptions were made as to domestic products prepared and foreign products imported prior to September 3, 1914, and also foods in very small packages, such as candies.

The application of the law was also extended by administrative order to include domestic meat and meat food products. These materials had hitherto been subject to seizure only when found in establishments where Federal supervision was maintained under the meat inspection law. Decisions were also promulgated prohibiting the sale of frozen citrus fruit, and dealing with the sophistication of brandies.

Approximately 10,000 samples of food and drugs were collected for examination under the law, and a total of 1048 violations were reported for prosecution, of which 652 were criminal cases. Of the 1250 cases terminated during the year, fines aggregating $23,463,50 were imposed in 596 criminal cases, and decrees of condemnation and forfeiture entered against 365 shipments of adulterated or misbranded goods. An earlier decision in favor of the government contention that flour bleached with nitrogen peroxide is adulterated and misbranded was reversed by a higher court, and the case was pending before the United States Supreme Court at the close of the year.

State legislation as to the labeling of package goods to show the net quantity was adopted in Iowa, Michigan, Oregon, and South Dakota. The sanitary inspection of bakeries, canneries, restaurants, etc., was taken up in Iowa, Ohio, South Dakota, and Wyoming, while Connecticut, Iowa, Nebraska, and North Dakota undertook the regulation of cold storage practices. Amendments to pure food laws were also adopted by Nebraska, Nevada, New Jersey, New York, and Utah. Efforts were under way to bring about closer coöperation between the Federal and State inspection.

COST OF FOOD. Although there were some fluctuations in food prices, *Bradstreet's* reported the highest yearly index number in its history. Eggs, meats, livestock other than beef, fish, milk, cereals other than wheat, fruits, potatoes, and tea were some of the principal commodities which were higher December 1, 1913, than a year previously. Data gathered by the U. S. Bureau of Labor showed that on August 15, 1913, retail prices in forty industrial cities housing one-fifth of the population of the country, were eight per cent. higher for the fifteen principal articles of food than on the corresponding date of the previous year, while as compared with the ten-year period, 1890-99, fourteen of these items showed increases ranging from 27.9 per cent. with wheat flour to 138 per cent. with smoked bacon, and the only commodity to show a decrease was sugar (2.3 per cent.).

The high prices and their causes were subjects of much speculation and inquiry, their effects being felt to a greater or less extent in every civilized country. An exhaustive study in Great Britain showed that during the last seven years the retail prices of food and coal increased 13.7 per cent. The high cost of meats in Germany led to the establishment of municipal markets in Nuremberg, the encouragement of the substitution of fish by the establishment of municipal fish markets, and free lessons in cooking and recipes. A government commission on the high cost of living was appointed in Canada. A congressional inquiry was being organized in the United States at the close of the year, and a committee was designated by the secretary of agriculture to investigate meat production.

The influence of cold storage on prices was a phase receiving much consideration. A careful study by the U. S. Department of Agriculture indicated that the increased prices were the product of many factors of which cold storage was only one, and that while it had tended toward uniformity of prices throughout the year, it had not so resulted with all commodities nor with all periods.

Efforts were being made to utilize the parcel post for shipments of farm produce direct to the consumer, and while it had become apparent that the method had its limitations, it also seemed to present considerable possibilities. There was also increased interest in the formation of coöperative associations both for selling and purchasing farm produce.

NUTRITION STUDIES. The U. S. Department of Agriculture, through its nutrition investigations, advocated the increased use of mutton as an important foodstuff at a reasonable cost. Other studies of fresh and frozen mutton showed that the interior of these meats remained sterile at temperatures of from 2 to 19° F. for months, and that there were only slight chemical changes of the same nature as in the ripening of fresh meat. The Bureau of Chemistry demonstrated that by proper methods in the refrigeration of dressed poultry in transit and the handling and preservation of eggs much of the deterioration and waste encountered in marketing these commodities may be avoided. The most favorable car temperature for dressed poultry is apparently 30° F. or lower, and its uninterrupted maintenance is of special importance.

A large percentage of the so-called graham flours on the market was found to be made by mixing inferior grades of flour with bran, although a great many millers still utilize the original process of grinding the whole kernel. In bread-making tests, the use of acid extracts of bran in place of a part of the water produced larger loaves with a better color and texture, especially with the stronger flours. Similar but less pronounced results followed the use of water extracts and bran. An increase in the amount of salt used up to three pounds per barrel of flour gave a larger volume and improved the texture and grain, but any larger amounts impaired the quality, although this depended in part upon the time of year and the hardness of the water. Bread was kept fresh from ten to fifteen hours by storing it in an atmosphere with eighty-five per cent. humidity, maintained by a shallow pan filled with saturated salt solution and an air circulation kept up by a small ventilating fan. It is suggested that such an apparatus might obviate night work in some bakeries.

Analyses at the Connecticut State Experiment Station of some 500 samples of so-called diabetic foods demonstrated much variation and considerable misrepresentation in these products, their protein content ranging from eighty-seven to eleven per cent. and that of carbohydrates from four to seventy-six per cent., while the cost varied from 9 cents to $1.56 per pound. An examination of eight canned chicken soups at the North Dakota station indicated that in many of these goods beef, beef extract, and excessive amounts of boiled rice had been substituted for chicken. The Bureau of Chemistry found that ten commercial brands of bouillon cubes contained from fifty to seventy-four per cent. of common salt, and that while the cubes are valuable stimulants or flavoring agents, they have far less food value than home-made beef broths and soups which may be readily prepared at a fraction of the cost.

Cooking vegetables in steam was found to prevent the loss of most of the mineral constituents and was especially effective with carrots. A study of the raw juices of cabbage, lettuce, onions, cucumbers, horseradish, etc., indicated that most of these materials possessed considerable enzymic power, notably catalytic activity and tryptic and diastatic action. These findings were believed to suggest a possible explanation of the favorable action of fresh vegetables in the prevention of such diseases as scurvy and beriberi.

With reference to the influence of shellfish in transmitting typhoid fever and similar diseases, the contention was urged that oysters are a source of danger only when floated in polluted waters during their non-hibernating periods. More stringent regulations were advocated as to clams, as these were considered a more serious source of danger since they thrive under polluted conditions.

Several investigations of aluminum cooking utensils agreed in showing that, as now constructed by reputable manufacturers, such utensils are free from risk of poisoning. Studies of the use of ice indicated that, with more economical methods of ice manufacture and distribution and the substitution of properly constructed and insulated refrigerators for the majority of those in common use, refrigeration much superior to those now found in most homes could be obtained for much less than the present cost. Keeping unsterilized milk for infants warm in vacuum bottles was condemned, inasmuch as such conditions are especially favorable to the growth of bacteria.

Studies of the various proteins by Osborne and others again showed wide difference as to their utilization by the body. Similar differences were also discovered in the natural fats, unsalted butter and egg yolk proving much superior to lard.

BOOKS OF THE YEAR. Some of the more important books to appear in 1913 were: J. Westervelt, *American Pure Food and Drug Laws* (Kansas City, Mo.); American Academy of Political and Social Science, *The Cost of Living*, and *Reducing the Cost of Food Distribution* (Philadelphia); Mary S. Rose, *A Laboratory Handbook for Dietetics* (New York); A. Bryce, *Modern Theories of Dietetics and Their Bearing upon Practical Dietetics* (London); Louise S. Bryant, *School Feeding, Its History and Practice at Home and Abroad* (Philadelphia and London); D. McKay, *The Protein Element in Nutrition* (London).

FOOTBALL. Harvard for the second year in succession won the eastern intercollegiate football championship, going through the season without suffering a single defeat. The wonderful kicking ability of Charles Edward Brickley was the chief factor in the Crimson's fine showing, but much credit also must be given to the effective coaching system established at the Cambridge institution by P. D. Haughton. The Harvard eleven had little difficulty in defeating the teams sent against it, the closest struggle being that with Princeton, where Brickley's toe was responsible for the only score. In the game against Yale, Brickley also distinguished himself by making five goals from the field, four on drop kicks and one from placement. The fact remains, however, that the skill shown by the other members of Harvard's back field in advancing the ball into Yale territory gave Brickley his opportunities for scoring.

The ranking of the Eastern teams outside of Harvard is a difficult matter. Carlisle School was placed second to the Crimson by several experts. The Indians reached their top form in the contest with Dartmouth, which in turn had been victorious over Princeton. Dartmouth seems to be clearly entitled to third place with the other colleges arranged in the following order: U. S. Military Academy, Yale, U. S. Naval Academy, Princeton, Cornell, Colgate, Pennsylvania, Washington and Jefferson, and the University of Pittsburgh.

Among the surprises of the 1913 season were the victories of Cornell over Pennsylvania, Colgate over Yale, and the Army over the Navy. In intersectional games Michigan defeated Pennsylvania, Cornell, and Syracuse. Notre Dame, also a Western institution, won fame by her brilliant victory over the U. S. Military Academy through the expert use of the forward pass. Chicago won the conference college championship by making a clean sweep of its games. A summary of the principal football games of the leading colleges in 1913 follows:

Harvard defeated Maine 34-0, Bates 14-0, Williams 23-3, Holy Cross 47-7, Pennsylvania 37-0, and Yale 15-5. Carlisle defeated Lehigh State 29-0, Cornell 23-6, Princeton 3-0, Brown 21-7, Cornell 7-0, Dartmouth 35-10, and Syracuse 35-27. Carlisle was defeated by Pittsburgh 6-12, and Brown 0-13, and tied by Pennsylvania 7-7. The U. S. Military Academy defeated Rutgers 29-0, Colgate 7-6, Stevens 34-0, Tufts 2-0, and the U. S. Naval Academy 22-9, and was defeated by Notre Dame 13-35. Yale defeated Wesleyan 21-0, Holy Cross 10-0, Lafayette 27-0, Lehigh 37-0, and Brown 17-0; tied Princeton 3-3, Maine 0-0, and Washington and Jefferson 0-0, and was defeated by Colgate 6-16, and Harvard 5-15. The U. S. Naval Academy defeated Dickinson 29-0, Lehigh 39-0, Bucknell 70-7, New York University 48-0, and Pennsylvania State 10-0; tied Pittsburgh 0-0, and was defeated by the Army 9-22. Dartmouth defeated Colby 53-0, Vermont 33-7, Williams 48-6, Princeton 6-0, Amherst 21-7, and Pennsylvania 34-21, and was defeated by Carlisle 10-35. Princeton defeated Rutgers 14-3, Fordham 69-0, Bucknell 28-0, Syracuse 13-0, and Holy Cross 54-0; tied Yale 3-3, and was defeated by Dartmouth 0-6, and Harvard 0-3. Chicago defeated Indiana 21-7, Iowa 23-6, Purdue 6-0, Illinois 28-7, Northwestern 14-0, Minnesota 13-7, and Wisconsin 19-0.

The "All-American Eleven," as picked by Walter Camp, was made up as follows: Ends, Hogstett, Dartmouth, and Merrillat, Army; tackles, Talbott, Yale, and Ballin, Princeton; guards, Pennock, Harvard, and Brown, Navy; centre, Des Jardien, Chicago; quarterback, Huntington, Colgate; halfback, Craig, Michigan, and Brickley, Harvard; fullback, Mahan, Harvard.

Theres were fourteen deaths attributed to football in 1913, while 175 players were reported as injured. No serious accidents occurred in contests between the higher class teams, indicating that the revised game is not a dangerous sport provided the players are under the care of competent trainers.

Association football or "soccer" is rapidly gaining in popularity in the United States. During 1913 the United States of America Football Association was formed, and this organization is contributing largely to the success the sport has attained. A summary of the more important soccer championships decided during the year follows:

American Football Association, won by the True Blues of Paterson, N. Y.; American Amateur Association, won by the Yonkers, N. Y., Field Club; Intercollegiate, won by Haverford; N. Y. State Amateur League, won by the Brooklyn Celtics of Brooklyn; Field Club Soccer League of New York and New Jersey, won by the Staten Island Cricket and Tennis Club of Livingston, N. Y. The annual match between Oxford and Cambridge at London, England, resulted in a tie score, 2-2.

FOOTE, LUCIUS HARWOOD. An American diplomat, died June 4, 1913. Born at Winfield, N. Y., in 1826 and graduated from the Western Reserve University in 1850, he crossed the plains in 1853 to California, and in 1856 was admitted to the bar there. In the same year he was appointed municipal judge of Sacramento, serving for four years, then becoming collector of the port of Sacramento. He served as consul to several cities in South America, and in 1882 conducted a special diplomatic mission to Central America. In the same year he was appointed minister to Korea, where he distinguished himself in the protection of Japanese and other foreigners in the nationalist revolt in 1883. For this he received the thanks of the emperor of Japan, the emperor of China, and the emperor of Korea. He resigned his post in 1884. In 1890 he became secretary and treasurer of the California Academy of Sciences. He wrote several volumes of poems, including *Red Letter Day and Other Poems* (1882); and *On the Heights* (1887).

FORBES, Henry Prentiss. An American theologian and educator, died October 2, 1913. He was born in Paris, Me., in 1849, and graduated from the St. Lawrence University Theological School in 1873. In 1874-75 he studied at Leipzig. He was ordained to the Universalist ministry in 1874, and from 1875-80 was pastor of Danvers. In the latter year he was appointed professor of Biblical literature at the theological school at St. Lawrence University. From 1899 until his death he was dean of this school. He wrote *The Johannine Literature and Acts* (1907).

FORD, Patrick. An Irish nationalist and editor, died September 21, 1913. He was born in Galway in humble circumstances in 1845, and at an early age emigrated to the United States. He became a compositor, and with the aid of borrowed money founded the *Irish World* in New York City, with himself as editor, and his brother Augustine as manager. To this paper contributed some of the most famous of Irish nationalists, including Thomas Mooney and O'Donavan Rossa. The paper became a great power for the cause of Irish nationalism in the United States and Great Britain. Large sums were collected by its aid and sent to the Irish nationalists for the spreading of their propaganda. In 1876 the skirmishing fund, the chief purpose of which was declared to be the burning of London and other English cities, was started in the *Irish World*. Personally, Ford was quiet and unobtrusive in manner, and rarely appeared at Irish political demonstrations. He continued until the time of his death to be one of the chief collectors in the United States of subscriptions in aid of the Nationalist party.

FOREST FIRES. See Forestry, *Fire Protection Work.*

FORESTRY. For the year ended June 30, 1913 the United States exported forest products of all kinds worth $124,784,215, and imported $180,428,074 worth. This represents a gain of $16,661,961 in exports and $7,904,609 in imports. According to the U. S. Census estimate, the lumber production in the United States for 1912 was 39,158,414,000 feet, board measure, as increase of 2,155,207,000 feet over 1911. Of the total cut, soft woods furnished 30,526,416,000 feet, and hardwoods 8,631,988,000 feet. The production of lath in 1913 was 2,719,163,000, and of shingles 12,307,685,000.

Fire Protection Work. Twenty-four States organized forest fire protective systems. Preventive measures, applying to railroads, lumbermen, and others, were enacted in thirty States. Fourteen States were actively coöperating with the Federal government, under the Weeks law, in the protection of forested watersheds on navigable streams. The number of patrol associations organized by forest owners was materially increased during the year. A strong coöperative spirit developed between the various interests involved. Similar conditions existed in Canada. The Canadian railway commission organized fire protection on about 25,000 miles of railroad, in which all official agencies coöperate. With few exceptions the 1913 season was unfavorable for large fires. On the other hand, small fires were sufficiently numerous to fully demonstrate the value of well-organized control. In California and in North Carolina, which States do not have effective protective systems, the forest fire loss amounted to several hundred thousand dollars. Three lives were lost in California. The Western Forestry and Conservation Association, which patrols about twenty million acres of timber in Oregon, Washington, Idaho, Montana, and northern California, reported a season of about average hazard, with fire loss practically nothing. In New York, two fires in the Adirondacks resulted in a loss of $60,000. On the national forests, California, Arizona, and New Mexico suffered most during the past season. By the middle of September, although 2260 fires were reported, as compared with 2470 in the previous year, only 60,000 acres were burned over, as compared with 230,000 acres in 1912 and 780,000 acres in 1911.

The National Forest Service. The net area of all national forests on June 30, 1913, was 165,515,518 acres. There were also 21,101,130 acres of alienated land within the national forest boundaries. With the assistance now received by the bureaus of soils and plant industry, new agricultural areas are rapidly being segregated. The entire North Platte division of the Nebraska national forest, comprising 240,000 acres, was recently eliminated. Another elimination in the Rainier national forest was to amount to 23,000 acres. In the Deschutes and Paulina national forests in Oregon it was decided to recommend a revision of the boundaries which will eliminate 413,770 acres. Besides the elimination areas, 3,000,000 acres were examined with reference to entry under the forest homestead law. During 1913 the national forest reservation commission approved for purchase tracts aggregating 425,717 acres, making a total of 713,415 acres thus acquired in the Appalachian and White Mountains under the Weeks law. (See Year Book, 1912, Forestry.) Forest operations in these purchases were confined to fire protection work.

The cost of administration, protection, and permanent improvements in the national forests for 1913 was $5,092,101.41, a total somewhat less than last year. The receipts were: Timber sold, $1,341,337.63; grazing, $1,007,739.51; special uses, $118,512.93. After deducting all refunds, the excess in receipts over last year was $282,663.94. Out of the total receipts of $2,391,920.85, thirty-five per cent. will go to the States in which the forests are situated for the benefit of their schools and roads. The various States involved have received about $3,000,000 from this source since 1906.

The forest service collected 40,000 pounds of tree seed in 1912 for use in reforestation work. The total area reforested was about 30,000 acres. In 1912 the forest service distributed 116,000 basket willow cuttings: 15,000 to forest schools, 20,000 to agricultural experiment stations, and 81,000 to individuals. A national arboretum was being established in Rock Creek National Park, District of Columbia. Eventually it will contain all American tree species which will thrive there.

The national forests contained water power with an aggregate estimated capacity of 12,-

000,000 horse power, available for use under permit from the Secretary of Agriculture. More than 800,000 horse power under conditions of lowest stream flow had been developed. In order to prevent exorbitant charges for power to settlers in the vicinity of the national forests, the maximum rate which power companies may charge was definitely fixed in the permit.

The forest service maintained in 1913 nine experiment stations for studies in reforestation and similar subjects. In forage and range investigations, the most notable event of the year was the establishment of the Utah experiment station on the Manti forest, where all intensive experiments were to be centralized. Studies of a large number of important commercial trees of the United States, covering their growth, volume yield, utilization, life history, and management, were completed during the year. Studies relative to the closer utilization of national forest timber, wood preservation, chemistry, distillation, timber physics, and pulp and paper investigations were continued. About 4000 timber tests were made at the forest products laboratory each month. A final monograph on the results of these tests was in preparation. In proportion to its weight, California redwood was found the strongest conifer so far tested. This strength is due to its long wood fibres.

FORESTRY LEGISLATION. The forestry clause of the New York State constitution was amended to permit restricted use of the forest preserve for the development of water power, storage reservoirs, etc. The Pennsylvania laws provided for a low annual tax on private forest lands voluntarily placed under State supervision. A deferred tax on the value of the timber was to be assessed and paid when the timber was cut. The recent legislature permitted the Department of Forestry to lease permanent camp sites within the State forests. South Dakota had an organized State forest service. A bounty was provided for planting forest trees in that State. North Dakota created the office of State forester, and provided for the establishment of State nurseries, as well as the distribution of forest trees and seeds. In Kentucky coöperative agreements between the State board of forestry and the Federal government under the Weeks law were approved. By a law passed in Connecticut, timber growers and owners were required to pay the present assessed value of land and of timber over ten years old. Timber below this age and all new plantings were exempted from taxation, and in all cases the owner was protected from increased taxation for a period of fifty years, or until the timber was cut, when a ten per cent product tax would be assessed. In New Hampshire provision was made for the municipal purchase and maintenance of forests under direction of the State forester. In Vermont established reforested areas were to be taxed on the land value alone, and not to exceed $3 an acre. The State forest lands in Oregon had been withdrawn from sale for a period of fifty years.

Three new forest reserves were established in Hawaii. There were in 1913 thirty such reserves with a total area of 687,837 acres. The Hawaiian legislature established a division of hydrography, and provided for the conduct of the divisions of hydrography and forestry by setting apart as a special fund the revenues derived by the Territorial government from leases and licenses of water rights on streams coming from the forests. The amount made available approximated $67,000 annually, to be equally divided between the two divisions.

CANADA. In Canada the Dominion forest reserves and parks act, as amended on June 6, 1913, added over 10,500 square miles to the Dominion forest reservations, making a total of over 35,800 square miles of reserved forest land in the western provinces, over two-thirds of which was in Alberta.

FORESTRY IN FOREIGN COUNTRIES. At the International Forestry Congress, which was held in Paris in June, a large body of representatives coming from every continent on the globe met for the purpose of studying economic and technical forestry problems and of promoting legislative and administrative reforms leading to the conservation of the forests, the prevention of soil erosion, and the reforesting of waste lands. On December 30, 1913, a resident of Berlin presented to the city a fund of $1,250,000 in endowment of a forest school for boys. It was expressly provided that the students must be healthy and not hereditarily diseased. The pupils were to be taken on long trips afoot so that they might become acquainted with the "fatherland." There were nearly 6000 professional foresters in Germany who were associated with various technical societies. France spent $35,000,000 in planting trees on the watersheds of important streams. A French process of "electrocuting" timber was stated to have given perfect seasoning in a single night. With lead plate electrodes on each side, the timber was placed in a solution containing 10 per cent. borax, 5 per cent. resin, and a little soda, and application of the current expelled the sap and filled the wood cells with the borax and resin.

Provision was made in England for technical advice in forestry. B. B. Ostmaston was placed in charge of the Central and Southern District, and Charles Hawkins was to take charge of the Eastern District. In India important concessions were being offered to paper manufacturers in order to encourage the utilization of bamboo for paper making. The new Chinese Republic established a department of agriculture and forestry. The government of Peru established an experiment station along the Madre de Dios River with the special object of encouraging the cultivation of rubber-producing trees indigenous to the section, and for the purpose of introducing and acclimatizing useful food-producing plants.

FORESTRY SCHOOLS, PERSONNEL, ETC. The New York State College of Forestry at Syracuse started in the fall with a total registration of 203 students. The legislature appropriated $250,000 for a building for the college. The college was to prepare and carry out a plan of management for the 14,000 acres, lying along the Hudson, controlled by the Palisades interstate park commission. A fifth professorship in forestry was established in the department of forestry at Cornell to cover the university extension work in forestry throughout the State. The forest land equipment at Cornell was increased by a gift of 200 acres; eight woodlots, and a farm of 38 acres had previously been given to the department.

The University of Wisconsin established a 2-year forest ranger course in coöperation with the State Board of Forestry. The University of Washington substituted a 5-year course for its former 4-year course in forestry, with greater facilities for specialization in the last three years. Two sections of land on the Snoqualmie national forest were secured by the university. A 10-weeks course in practical forestry was established at the University of Idaho. At the Harvard school of forestry hereafter the first year is to include only general and fundamental technical courses. The second year is to be devoted to advanced work in four special fields.

William Dawson of Aberdeen University succeeded A. Henry as reader in forestry at Cambridge. Prof. Henry was appointed first professor of forestry in the Royal College of Science, Dublin. He took up his work April 1, 1913. A new quarterly paper from Yale, known as *The Yale School News*, was issued during the current year. Fred Gordon Plummer, geographer of the U. S. forest service, died at Washington on August 15.

While excavating for a clay mine a sunken forest, entirely petrified and 30 feet below the surface, was recently unearthed near Bakersville, N. J. The forest covered an area of nearly 100 acres.

The New York State Forestry Association was organized at Syracuse, January 16, 1913. The Society for the Advancement of Forest Entomology in America was organized at Washington, March 1, 1913.

LITERATURE. Among recent works dealing with some phases of forestry were: H. J. Elwes and A. Henry, *The Trees of Great Britian and Ireland* (Edinburgh, 1913, vol. 7); C. S. Sargent, *Trees and Shrubs* (Boston and New York, 1913, vol. 2, pt. 4); A. Zimmermann, *Der Manihot-Kautschuk* (Jena, 1913); W. F. de B. MacLaren, *The Rubber Tree Book* (London, 1913); H. H. Gibson, *American Forest Trees* (Chicago, 1913); J. F. Rock, *Trees of the Hawaiian Islands* (Honolulu, 1913); A. F. Blakeslee and C. D. Jarvis, *Trees in Winter, Their Study, Planting, Care, and Indentification* (New York, 1913); A. B. Recknagel, *The Theory and Practise of Working Plans* (New York, 1913); C. A. Schenk, *The Art of the Second Growth or American Silviculture* (Albany, 1912, 3d rev. ed.); R. C. Bryant, *Logging* (New York and London, 1913).

FORESTRY ASSOCIATION OF AMERICA. During 1913, the American Forestry Association extended its educational propaganda, by which it enlisted service in securing the proper use and conservation of the forests in every State of the Union, every province in Canada, and other civilized or semi-civilized foreign countries. It is generally recognized as the leading exponent of forest conservation in the western hemisphere. A special feature of its work, by which was secured the most important and valuable addition to the forest literature of the world in many years, was the appropriation of $5000 to pay the expenses of eleven committees which during 1913 investigated various forest conditions and reported to the National Conservation Congress at Washington in November. These reports represent the most advanced thought of theoretical and practical experts in forestry in the United States and Canada. The association published a monthly magazine, *American Forestry*, of which Percival Sheldon Ridsdale, the executive secretary of the association, is the editor-in-chief, and this is the only national publication on forestry in the United States. The officers of the association in 1913 were president, Dr. Henry S. Drinker, president of the Lehigh University; treasurer, Otto Luebkert, Washington, D. C.; and executive secretary, P. S. Ridsdale, Washington, D. C.

FORMOSA, or TAIWAN. An island dependency of Japan, off the coast of the Chinese province of Fukien. Capital, Dai-Hoku, or Tai-Pei (variously spelled, as Daihoku, Taihoku, Taipei). The island of Formosa has an area of 2,318.5 square ri; the seven adjacent isles, 5.6 square ri; total, 2,324.1 square ri, or 13,841 square miles. Estimated population in 1913, 3,512,607. The estimates of population vary, even as officially reported. The following are taken from the *Résumé statistique de l'Empire du Japon*, published in 1913; population present at the end of 1901, 2,931,098; 1906, 3,193,708; 1909, 3,290,186; 1910, 3,341,217. The latter number was comprised of 3,106,223 civilized and 122,106 uncivilized aboriginals, 98,048 Japanese, and 14,840 foreigners. Males were reported at 1,760,019, and females at 1,581,198. Population present of the larger towns December 31, 1911: Dai-Hoku, 95,077 (Jonai 12,420, Moko 33,498, Daitote 49,159); Dainan (Tainan), 59,601; Kagi (Chia-i), 22,418; Rokko (Lukong), 19,153; Kiilung (Keelung), 17,962; Shinchiku (Hsin-Chu), 16,294; Gilan (Ilan), 16,062; Shokwa (Chang-Hua), 15,545; Taku (Takow), 13,775; Daichiu (Taichu), 12,788; Toko (Tonkong), 12,230. The census of 1905 showed that 97.62 per cent. of the inhabitants in the administrative were illiterate. The Japanese are developing an educational system.

Important agricultural products are rice, tea, sugar, sweet potatoes, ramie, and jute. The forests yield camphor, worked as a government monopoly. The mineral products include gold, silver, copper, coal, sulphur, and petroleum. Exclusive of the large trade with Japan, imports and exports of merchandise amounted to 12,809,795 and 8,234,097 yen respectively in 1901; 12,737,460 and 9,779,084 in 1906; 19,555,047 and 13,175,590 in 1911; and 19,307,000 and 14,960,000 in 1912. Leading imports in 1911, in thousands of yen: Sugar machinery, 4238; opium, 1880 (against 3643 in 1910); oilcake, 909; leaf tobacco, 829; rails and accessories, 775; petroleum, 660; paper and manufactures, 599; there is a considerable importation of cotton fabrics. Principal exports in 1910 and 1911 respectively, in thousands of yen: Oolong tea, 3853 and 5228; pouchong tea, 1935 and 1811; refined camphor, 3933 and 3463; sugar, 492 and 956; flax and hemp, 338 and 389; sesame, 137 and 207. Principal exports in 1912: Tea, 6674 thousand yen; camphor, 4410; sugar, 1719. Imports and exports of merchandise by countries, in thousands of yen:

	Imports		Exports	
	1911	1912	1911	1912
China	5,860	6,767	3,661	4,264
United Kingdom	4,486	3,490	646	1,087
British India	1,460	2,173	90	342
United States	1,732	1,700	6,005	4,917
Germany	2,757	1,072	1,646	1,573
Hongkong	215	119	368	393
Other	3,045	3,986	760	2,384
Total	19,555	19,307	13,176	14,960

Length of railway (1913), 476 kilometers (296 miles). On August 3, 1913, a celebration was held at Dai-Hoku in commemoration of the completion of 1000 miles of steam railway in the Island of Taiwan. Of this amount 327 miles were owned and operated by the government, the remainder by the modern sugar companies. Telegraphs (1912), 1038 kilometers of line and 5499 of wire; telephones, 1218 and 13,787; post offices, 140. The budget for 1912-13 balanced at 45,325,508 yen; for 1913-14, 44,055,366. Formosa is administered by a governor-general resident at Dai-Hoku (in 1913, Lieut-Gen. Count Sakuma Samata).

FOUNDATIONS. A notable foundation under way during the year in New York City was that being built to support the new 38-story Equitable Building, which was to be erected on a lot 167 by 312 feet. This foundation was interesting, not so much on account of the novelty of plan, but for its extent and for the efficient mechanical arrangement for its execution, especially the use of mechanical means for handling the material. Like other portions of lower New York, the ground to be excavated consisted of fine sand down to a 12-ft. layer of hard pan, which overlay bed rock at a distance of about 20-ft. below the curb. As the sand carried much ground water the problem of drainage and keeping the foundation dry was most important and the method adopted to secure this was the construction of a cofferdam consisting of 37 wall caissons enclosing all sides of the lot and extending from water level to bed rock. The corner caissons were about 12 ft. square and the intermediate caissons 25 ft. in length with a thickness of six feet. They were being set close together and their outer faces were placd at the boundary line of the lot. They were bonded together by a system of wells between the adjacent ends which were filled with concrete, a method previously found effective in constructing the foundation for the New York Stock Exchange on much the same kind of soil. These caissons, when completed, support the wall columns of the building and the remaining excavation and the placing of the foundations for the 80 remaining interior columns will be carried on in the open as it was not thought that caissons would be needed. For the concrete caissons which were being sunk by the pneumatic process, it was estimated that 1200 yards of excavation would be required and 1100 yards of concrete.

The foundations for the new Morgan Building in Wall Street in New York City under construction in 1913, were of cement similar in character to those of the Equitable Building. A continuous cofferdam wall, seven feet thick, was built completely surrounding the wall and on this the wall columns will rest and the retaining wall for the cellar excavation be built. In the interior 19 concrete piers were being excavated, but as the caisson built walls surrounding the lot made a completely water tight structure, no difficulty was anticipated in their construction and excavation to a hard pan level. The underpinning of adjoining buildings formed an interesting problem and 19 pneumatic cylinders spaced about twelve feet apart were carried down to hard pan in order to support the adjoining structures. While the new Morgan Building was to be but four stories in height, the foundations were being made adequate for a twenty-story building.

An interesting construction was under way during 1913 where the Lexington Avenue subway in New York City passes under the old Astor House property at Broadway and Vesey Street. The subway here was being built by tunneling methods, but in order to provide positive support for the tubes independent of any displacement of the sub-soil, four 6 by 8 ft. piers with foundations carried to rock by means of pneumatic-caissons were being provided as additional support. The tops of these piers were 40 ft. below the street level and carried a grillage of I-beams to distribute the load from cradles made of 36 in. plate girders which receive the tunnel tubes. There was in connection with this construction a heavy retaining wall 100 ft. long on Broadway and 167 ft. on Vesey Street, which permitted the excavation of the lot to any required depth without interfering with the tubes as it was being carried down through quicksand to solid rock to a depth of about 90 ft. below the surface. See also ARCHITECTURE.

FOX FARMING. The raising of foxes for fur has been exploited to considerable extent and has come into practice in the United States somewhat. On Prince Edward Island the industry has been quite successful, there being about 235 fox ranches there on which about 2500 foxes are kept in captivity, over half of which are classed as silver-black foxes. The *U. S. Daily Consular and Trade Reports* for January 11, 1913, gives an interesting account of the industry there and elsewhere in Canada. Ranches are developing in New Brunswick and Nova Scotia. The skins of the quasi-domesticated animals command the highest prices on the London market, $1000 and even $2500 being secured for choice pelts. Breeding stock is exceedingly expensive, $12,000 to $15,000 per pair being paid where unusual fertility has been demonstrated. Several islands in Alaska are leased for the breeding of silver-black and blue foxes.

FRANCE. A republic in western Europe. Capital, Paris.

AREA AND POPULATION. The area is officially given as 536,464 square kilometers, equal to 207,129 square miles. The population was in 1911 (census of March 5), 39,601,509, in 1906, 39,252,267. Marriages in 1911, 307,788; births, 742,114; deaths, 776,983; still births, 33,840 Paris had (in 1911) 2,888,110 inhabitants; Marseilles, 550,619; Lyons, 523,796; Bordeaux, 261,678.

EDUCATION. In 1910-11 there were 3967 infant schools, with 8615 teachers and 620,922 pupils; 82,488, with 156,981 teachers and 5,654,794 pupils; 166 primary normal schools, with 1720 teachers and 9326 students; 344 lycées and colleges for boys and 129 for girls, with 97,512 and 30,788 students respectively; 56 girls' secondary courses, with 5503 students. University students, January 15, 1912, 41,194.

The central educational system is under the direction of the ministry of public instruction, and is highly developed. All clerical schools are, by the law of 1904, to be suppressed by 1914. In 1911 there were still 17,175 infant school and 75,292 primary school pupils under clerical teachers. There are numerous special and technical schools, some controlled under other ministries. Degrees are conferred by state universities alone.

Since the separation (1905) of the state from the Roman Catholic Church, no national religion exists; all creeds are permitted to worship in public. During the transition period pensions and grants were to be paid to the clergy; but no basis of calculation has been agreed upon, the clergy refusing to recognize the new law or to come to any agreement under its conditions.

Agriculture. The total area of the country as given by the army geographic survey is 53,646,374 hectares, differing somewhat from that calculated by the ministry of the interior—52,955,764. It is the latter total that is used in the following account of the distribution of lands, agricultural or other, in 1910; 23,678,846 hectares under great crops and sown meadows, 4,884,400 under natural meadows, 1,568,030 under forage grasses, 3,610,430 under pastures, 1,684,523 under vines, 3,909,480 uncultivated lands, 1,372,486 in rosaries, shrubberies, market gardens, etc., 9,329,193 under forests, and 2,918,376 hectares put to various uses not included in any of the foregoing. The table below shows area and production of main crops for the two years last past (1912 final, 1913 provisional figures), with quintals produced per hectare in 1912:

	Hectares		Quintals		Qs.
	1912	1913	1912	1918	ha.
Wheat	6,571,580	6,543,550	90,991,500	87,833,200	13.8
Rye	1,201,630	1,197,200	12,382,200	13,555,350	10.8
Barley	759,630	764,910	11,014,200	10,940,200	14.5
Oats	3,981,980	3,998,830	51,541,600	54,338,150	12.9
Vines*	1,550,953	1,673,409	54,668,124	41,053,832	35.2
Tobacco	15,437	10,309	226,272	162,220	14.7
Beets †	255,170	231,028	72,221,045	60,300,910	283.0

* Production in hectoliters of wine. † For sugar.

There were reported under potatoes, in 1912, 1,497,750 hectares, producing 146,838,900 quintals (98 qs. to the ha.); in 1911, 1,559,130 ha., 127,747,300 qs. (81.93). Cider production 1912, 17,661,598; 1911, 22,439.938. Under all forage plants in 1911, including roots and grasses, anuual and perennial, 15,271,830 hectares, yielding 709,963,000 quintals, valued at 3,517,472,000 francs. Under truck gardens, 291,420 ha., yielding produce valued at 567,222,000 francs. The wheat produced in 1911 was valued at 2,252,003,000 francs; oats, 1,042,468,400; potatoes, 1,130,647,420; wine, 1,338,141,144; sugar beets, 135,998,980; apples and pears for cider, 198,269,540; truck-garden produce, 440,994,000; forage beets, 337,373,380. Hay from natural meadows was valued at 1,268,423,640 francs; lucerne, 400,353,390; clover, 305,466,200; annuals planted for forage, 256,839,370; mixed grasses, 341,863,350; etc. Silk-worm eggs placed in 1912 for hatching, 33,133 hectograms; cocoons obtained, 6,233,942 kilograms; average yield of cocoons per hg. of eggs, 188.1 kg.

Livestock. Number of horse in the country in 1911, 3,236,160; mules, 194,000; asses, 360,590; cattle, 14,552,430 (7,606,670 cows, 1,821,560 steers, 390,940 bulls, 2,778,760 young stock, 1,954,500 calves); sheep, 16,425,330; swine, 6,719,570; goats, 1,424,180. Livestock census of December 31, 1912: 3,222,140; horses 196,410; mules, 358,660; asses, 14,705,900; cattle (7,745,750 cows, 2,842,710 young stock, 1,844,790 steers, 283,670 bulls, 1,988,980 calves), 16,467,700 sheep, 6,903,750 swine, 1,408,520 goats.

Fisheries. Engaged in the maritime fisheries in 1909 were 29,876 boats, of 232,514 tons; their total value was 84,559,072 francs, and the value of their engines was 26,685,240 francs. Fishermen, 159,899; total value of output, 134,865,728 francs.

Mines and Furnaces. The number of conceded mines in 1910 was 1483, covering 1,206,419 hectares. Of these, 557, covering 594,886 hectares, were in operation. Number of workers, 225,414 (161,329 underground, 64,085 at the surface). Output, 54,714,628 tons, valued at the pit's mouth at 682,869,802 francs; of which, coal and anthracite 37,634,893 tons, valued at 569,034,521 francs; iron ore 14,046,982 tons, 65,143,573 fr.; iron pyrites 250,432 tons, 4,269,498 fr.; lignite 715,049 tons, 7,222,471 fr.; gold ore 126,398 tons, 7,080,568 fr.; zinc ore 50,624 tons, 5,078,066 fr.; lead and silver ore 14,536 tons, 2,878,503 fr.; rock salt 765,617 tons, 10,597,361 fr.; sea salt 285,810 tons, 4,723,252 fr.; etc. The quarries employed 126,344 workers and produced 50,794,168 tons, valued at 261,151,200 francs.

Metal works in operation in 1910, 203; employing 98,902 workers and consuming 3,404,126 tons of coal, 4,693,749 of coke, and 10,250 of charcoal. Of these, 47 were smelting works, with 17,745 workers and output 4,038,300 tons, valued at 315,538,000 francs; 101 puddling works, with 16,345 workers and output 525,900 tons, valued at 96,836,000 francs; 95 steel works, with 64,812 workers, and output 2,323,500, valued at 480,700,000 fr.; 34 other, with 5462 workers, and output 100,325 tons, valued at 83,151,000 fr.; (fine gold, 458,000 fr.; platinum, 11,000 fr.; fine silver, 5,931,000 fr.; lead, 7,106,000; zinc, 29,687,000; copper, 19,672,000; nickel, 7,350,000; aluminum, 9,944,000; antimony, 2,542,000; manganese, 450,000.

Other Industries. Number in 1910 of silk factories, 214; producing for the year 771,655,785 kilograms of spun silk; value of output of silk stuff, exclusive of ribbons, 471,297,000 fr. (414,777,000 fr. in 1911). Sugar factories (1910-11), 239; treating 5,512,429,084 kilograms of beets, and producing 650,487,730 kilograms of refined sugar. Distilleries in operation (1911), 13,713; output, 2,272,133 hectoliters pure alcohol; 676,200 hl. denatured alcohol.

Commerce. In the table below are given corrected figures for the 1911 special trade, and provisional figures for 1912 (A, foodstuffs; B, raw materials; C, manufactured articles and exports by parcels post); values in thousands of francs:

	Imports		Exports	
	1911	1912	1911	1912
A..........	2,020,000	1,693,200	736,900	847,700
B..........	4,525,300	4,652,100	1,830,100	1,935,000
C..........	1,520,500	1,605,600	3,509,900	3,853,700
Total...	8,065,800	7,956,900	6,076,900	6,636,400

Total general in 1911: 9,809,900.000 imports and 8,012.200,000 exports. A more detailed table follows for the two years, values in thousands of francs:

	Imports 1911	Imports 1912	Exports 1911	Exports 1912
Cereals....	715,100	344,400	9,800	13,900
Wines.....	301,500	305,700	187,700	225,900
Textiles...	1,694,900	1,787,400	635,200	677,200
Yarns.....	223,600	235,800	1,004,800	1,091,100
Other mdse....	5,130,700	5,277,600	4,239,400	4,628,300
Total....	8,065,800	7,950,900	6,076,900	6,636,400

Some of the principal articles of import and export in the 1912 table, with values in thousands of francs, appear below:

Imports	1000 fr.	Exports	1000 fr.
Cereals	715,100	Skins	349,300
Wool	628,200	Cottons	334,200
Cotton	558,700	Wool	323,600
Coal	453,500	Silk goods......	292,000
Oil-seeds	371,700	Lingerie	197,700
Skins	355,000	Woolens	190,600
Silks	317,400	Wines	187,700
Wines	301,500	A. de P.*.......	183,400
Machinery	286,700	Auto's	162,400
Rubber	237,800	Silks	162,400
Timber	193,300	Rubber	156,900
Coffee	144,400	Cotton	120,300
Copper	143,300	Paper	119,800
Ores	113,400	Machinery	113,600
Flax	85,900	Metal wares....	106,700
Jewelry	82,400	Novelties	87,200
Petroleum	81,400	Pottery, etc.....	83,300
Dairy products..	81,100	Woolen yarn....	75,200
Metal wares.....	77,400	Leather goods...	75,000
Crockery	76,700	Oils	73,900
Nitrate soda....	76,300	Jewelry	72,600
Paper	74,800	Rubber goods...	71,000
Feathers	73,400	Table fruits.....	69,200
Legumes	70,400	Dairy products..	66,200
Rice	67,500	Sugar	64,400
Animals	66,400	Timber	62,500
Rubber goods...	64,700	Plumes	59,600
Fish	63,300	Iron and steel..	59,400

* Articles de Paris.

Some of the principal countries of origin and destination in the 1911 trade (values in thousands of francs) are as follows: Great Britain, 994,200 imports and 1,219,200 exports; Germany, 979,700 and 794,600; United States, 826,800 and 379,700; Belgium, 542,600 and 1,024,200; Algeria, 425,600 and 489,900; Russia, 443,100 and 53,900; Argentina, 353,800 and 170,400; Spain, 230,500 and 135,600; Italy, 190,300 and 277,800; Brazil, 146,000 and 78,500; Switzerland, 140,200 and 394,000; Turkey, 101,600 and 81,300; China, 229,800 and 13,700; British India, 360,200 and 42,700; French Indo-China, 109,000 and 65,800; Netherlands, 140,700 and 65,000; Rumania, 175,100 and 10,700; Austria-Hungary, 87,800 and 46,400; Australia, 340,200 and 11,200.

Shipping. In 1911 there entered at the ports of France 28,183 vessels, of 29,867,010 aggregate tons, of which 7690 vessels, of 7,138,790 tons, were French. Cleared, 20,806 vessels, of 22,555,346 tons; French, 6946, of 6,623,511 tons. In 1912: 30,615 vessels, of 30,483,308 tons (8046, of 7,266,870 tons, French) entered; 31,013, of 30,882,743 (8244, of 7,478,433, French) cleared.

The merchant marine included, January 1, 1911, 17,621 vessels, of 1,451,648 tons (1726 steamers, of 815,567 tons); 1912, 17,729 vessels, of 1,462,639 tons (17,729 steamers, of 1,462,639 tons).

Communications. At the end of 1912 there were in operation 40,927 kilometers of main railways and 10,261 kms. of local lines. Large advances, accounting for a considerable proportion of the public debt, have been made by France to the railways, which will ultimately revert to the state. The leading items of interest for 1913, in connection with railway development in France, were the extension and development of lines crossing the borders. A 15½-mile cut-off, including the Mont d'Or tunnel of 3¾ miles, had been under construction since September, 1910, was nearing completion at the end of 1913, and was expected to be entirely completed in the ensuing year. The object of this line, which is being constructed by the Paris, Lyons, and Mediterranean Railway, was to shorten the route from Paris to Milan, *via* the Simplon tunnel, and the new Mont d'Or tunnel was being arranged for electric working. From Nice to Viviola, Italy, a heavy line, 49 miles in length, was under construction, but its completion was not anticipated until 1915. This line was to have a 15-mile branch from Breil to Ventimiglia. Still another border line construction was that from Aix-les-Bains in France to Puigcerda and Ripoli in the province of Gerona in Spain. A feature of this line is a 3¼-mile tunnel. Another international line was that from Noguera to Pallaresca, where a tunnel nearly 5 miles long was being constructed through the Pyrenees. Telegraph lines (1911), 161,436 kms.; wires, 611,726; stations, 17,619 state and 3645 railway and private. Post offices, 14,379. Telephone lines: 48,049 kms. urban and 103,288 kms. interurban lines; wires, 965,385 and 522,251. There are 3104 miles of canals and 5472 miles of rivers utilized in internal navigation.

Finance. The franc, worth 19.3 cents, is the unit of value. Revenue and expenditure for three years are shown below in francs:

	1908	1909	1910
Revenue....	3,966,415,128	4,140,912,961	4,273,890,789
Exp'diture..	4,020,549,697	4,186,090,468	4,321,918,609

The 1912 budget estimated the revenue at 4,495,849,566 francs, and the expenditure at 4,497,963,139 francs. The budget for 1913, as voted July 30, 1913, estimated the revenue at 4,736,301,908 francs: 622,334,030 from direct taxes, 67,971,490 domains and forests, 2,548,755,235 indirect taxes, stamps, customs, etc.; 968,655,373 monopolies and revenue-earning enterprises; etc. Expenditure, 4,738,603,534 francs: 1,296,423,922 for service of the debt; 20,116,488 public services, 50,732,863 finance, 57,901,727 justice, 20,120,037 foreign affairs, 141,961,939 interior, 983,224,376 war, 488,941,062 marine, 330,918,486 instruction and fine arts, 58,519,962 commerce, industry, etc.; 106,669,353 labor, 105,535,363 colonies, 39,094,141 agriculture, 340,905,255 public works, 649,951,630 costs of administration and collection of taxes, 47,586,900 repayments. The "special services" budget balanced at 816,329,331 francs. The total of the public debt stood, January 1, 1912, at 31,162,001,387 francs, and the floating debt at 1,395,898,400.

Army. See section *History*, under *The Three Year Law*, and *passim*. See also **Military Progress**.

Navy. The number and displacement (built), December 1, 1911, of warships, of 1500 or more tons, and of torpedo craft of more than 50 tons, were as follows: 2 battleships (dreadnought type) having a main battery of all big guns (11 inches or more in calibre), of 46,184 tons (and 9 of 214,100 tons, building); 18 battleships (pre-dreadnought type) of (about) 10,000 or more tons displacement and with main batteries of more than one calibre of 262,675 tons; 1 coast-defense ship, of 8800 tons; 20 armored cruisers, of 201,724 tons; 10 cruisers (unarmored war ships of more than 1500 tons), of 49,978 tons; 81 torpedo-boat destroyers, of 34,386 tons (and 5 of 3974 tons, building); 139 torpedo boats, of 13,920 tons; 75 submarines, of 28,224 tons (and 18 of 12,190 tons, building). Total built, 346 vessels, of 645,891 tons; total building, 32, of 230,264 tons—in all, 378 vessels, of 876,155 tons. Excluded from the foregoing are ships over twenty years old, unless reconstructed and re-armed within five years; torpedo craft over fifteen years old; transports, colliers, repair ships, torpedo depot ships, and other auxiliaries. Air craft April 7, 1913, included 13 military dirigibles on hand and 7 ordered; and 450 military aeroplanes on hand, including monoplanes, biplanes, and hydro-aeroplanes. The two dreadnought-type battleships completed in 1913, the *Jean Bart* and the *Courbet*, were launched in 1911. The *Courbet* was the first French ship of this class to be completed, and she was the vessel that carried M. Poincaré on his presidential visit to England in June, 1913. In addition to the nine building, another vessel of this type is to be laid down early in 1915, to be called the *Vendée*. Two of those building, the *France* and the *Paris*, were launched in 1912 and will be completed during 1914; three others—the *Bretagne*, launched April 21, 1913; the *Provence*, April 20; and the *Lorraine*, September 30—will be completed in 1915. Of the remaining four, two were begun in May, 1913, and two in November; to be completed in 1916. They will exhibit a new departure in armament, in that their guns are to be mounted four in a turret. In three turrets they will carry twelve 13.4-inch guns, whereas earlier types had twin turrets. The chief advantages of the new method are said to be simplicity of plan, economy of weight, and concentration of fire. Three projected scout cruisers to have been begun 1919 have been forwarded to 1914. The destroyers building will use oil fuel and attain a speed of 31 knots. The largest of the new submarines, the *Gustave Zédé*, has a displacement of 1000 tons submerged, and 800 tons when at the surface. She was launched May 20, 1913.

It is in the Mediterranean that the main fleet is stationed, under Vice-Admiral Boué de Lapeyrère. Three armored cruisers and torpedo and submarine flotillas lie in the English Channel.

The minister of marine (M. Baudin, succeeding M. Delcassé January, 1913) is the head of the navy, and acts as president of the council of admiralty, established September 7, 1913—an executive body with powers similar to those of the British board of admiralty. The navy is manned partly by conscription and partly by voluntary service. The personnel in 1913 comprehended 63,859 officers and men (60,621 in 1912, and 58,404 in 1911), including 15 vice-admirals, 30 rear admirals, 360 captains and commanders, and 1457 other line officers. France ranks fourth among the nations (the United Kingdom, Germany, the United States) in the amount of warship tonnage built, and also in the aggregate of tonnage built and building.

See also BATTLESHIPS, and NAVAL PROGRESS.

GOVERNMENT. The republic was proclaimed September 4, 1870. The constitution is that of February 24, 1875, amended August 2 and November 30, 1875, December 9, 1884, June 16, 1885. Two chambers compose the National Assembly, which convenes annually. Three hundred members, aged not less than forty years and elected by delegates for nine years, make up the Senate. There remained in 1912 only three of the life members elected by the Assembly previous to the introduction of the present system. The members (597; one to every 70,000 inhabitants) of the Chamber of Deputies are elected for four years by direct popular vote. The president (1906-1913, Clément-Armand Fallières) is elected for seven years per the Assembly, by an absolute majority of votes. His cabinet, responsible to the legislative body, is chosen by himself; in the majority of cases it is made up from members of one or other of the two chambers, but not necessarily so.

HISTORY

THE PATY DU CLAM INCIDENT. The beginning of the new year witnessed a revival of the animosities which had embittered the famous Dreyfus case of 1894. The affair was again brought to the attention of the public by the announcement that Col. Paty du Clam—notorious for his part in the prosecution of Captain Dreyfus—was about to be reinstated in the army by order of the minister of war, M. Millerand. A great hue and cry was raised; with vehement denunciations the opponents of the government attacked what seemed to be an attempt to rehabilitate the now discredited colonel. M. Millerand might explain that his act was without political significance, that the place had been promised to Col. Paty du Clam by a previous minister of war; but he explained in vain. The blunder cost him his portfolio; the Poincaré ministry, however, was not unseated. It allowed M. Millerand to shoulder all the blame. On January 11, M. Millerand sent in his resignation, assuring M. Poincaré that it was pleasant "to have been closely associated in the national and republican endeavors" of the cabinet. M. Lebrun, minister of colonies, was transferred to war; and M. Besnard filled the post vacated by M. Lebrun.

THE PRESIDENTIAL ELECTION. On January 14 the chambers met again. After the election of M. Deschanel as president of the Deputies and of M. Antonin Dubost as president of the Senate, the first important business was the election of a president of the republic for the term 1913-1920 to succeed M. Armand Fallières. The preliminary caucus was of more than ordinary interest and excitement. The rivalry was indeed not between parties, as in the United States, but between personalities. True, the revolutionary Socialist, M. Vaillant, represented a partisan issue; but he was hopelessly out of the race, and the two leading candidates were both members of the cabinet, M. Poincaré and M. Pams being respectively president of the council and minister of agriculture. Other aspirants to the presidency—M. Ribot, M. Dubost, M. Deschanel, M. Dupuy—dropped out during the caucus: M. Dubost in favor of M. Pams, and M. Ribot to benefit M. Poincaré. M. Pams then led with 323 votes as against 309 of M. Poincaré. The strength of M. Pams was surprising, considering the fact that he—prosperous bourgeois, inconspicuous senator, and subordinate in the cabinet—had entered the campaign late and could hardly compare in prestige, experience, and manifest ability with M. Poincaré. M. Pams was strongly supported by a group of Radicals—MM. Clémenceau, Combes, Monis, Caillaux, and Clémentel—who presumably were anxious to keep M. Poincaré, with his strong personality, his decided views on foreign relations, finance, and proportional representation, out of the supreme magistracy. A delegation including the five above-named politicians attempted to dissuade M. Poincaré from entering the contest; and quite naturally, M. Poincaré refused to withdraw. On the following day, January 17, the elections were held, in accordance with the constitutional provision that the president shall be elected for seven years by an absolute majority of the Chamber and Senate sitting in joint session at Versailles. On the first ballot no absolute majority was obtained, M. Poincaré with 429 votes falling short by four, and M. Pams receiving only 327. On the second ballot 34 supporters of MM. Deschanel and Ribot, and almost as many of M. Pam's adherents, contributed to give M. Poincaré an absolute majority. The vote stood: For M. Poincaré, 483; for M. Pams, 296; for M. Vaillant, 69; for others, 11; total 859, not voting 11. President-elect Poincaré immediately resigned his post as president of the council, which was taken by M. Briand; but a month elapsed before he took office. On February 18 he was received at the *Elysée* by M. Fallières, and formally inaugurated. As a matter of form, M. Briand tendered the resignation of his ministry, but was retained by the new president.

PRESIDENT POINCARÉ. The election of M. Raymond Poincaré was heralded throughout the country and the continent as a victory of nationalism; for M. Poincaré has ever been a firm patriot and a supporter of the Triple Entente, of a progressive radicalism as opposed to the morbid anti-clericalism of MM. Combes and Clémenceau; of a vigorous but not jingoistic military policy. Russia especially was pleased and manifested gratification by the telegram of Czar Nicholas II. to M. Poincaré, "The bonds which unite France and Russia will draw still closer for the greatest good of the two allied and friendly nations." In England and in Spain there was jubilation also, but in Italy unpleasant comments were passed. In France there was a premonition that the new president, a politician in his prime, would not readily consent to abandon the rôle of statesman for that of dignitary. The confirmation came speedily, even in the presidential address. For the first subject dealt with in that document, after the customary promise of loyalty to the constitution, was the scope of the powers of the presidency. "The prerogative of parliament will easily be reconciled with the rights and duties of the government: and the lessening of the executive power is desired by neither chambers nor country. Without a firm and clear-sighted executive power the welfare of the administration would soon be endangered, and at times the public peace might even be menaced." The president of the republic should become a more trusted and a more important magistrate.. In the light of this expanded conception of the presidential office, the policies enunciated by M. Poincaré were of real political significance. In a general way, social legislation was to be continued, and in this direction the republic "sees before it an unlimited field of social ameliorations and aspirations." Electoral reform, left suspended between Senate and Chamber by the Poincaré ministry, was to be carried through so as to secure "in the perfection of electoral methods, as sincere and exact an expression of the popular will as possible." No less important was the strengthening of national defenses. "It is not possible for a people to be efficaciously pacific except on the condition of being always ready for war. A France diminished, a France exposed by her own fault to challenges and humiliations, would no longer be *la France*." "It would be committing a crime against civilization to let our country decline in the midst of so many nations which are ceaselessly developing their military forces." "Our army and our navy give us proofs of their devotion and valor every day. Let us devote our vigilant consideration to them, and halt not at any effort, at any sacrifice, to consolidate and strengthen them." Statements such as these made it very clear that, although he would have no direct influence upon legislation, the president would not be a dispassionate observer of parliamentary debates.

During the year M. Poincaré, already well and widely liked, became extremely popular. In the autumn his tour through the country and his visits to numerous large cities were attended by such enthusiastic popular demonstrations as to be likened to triumphal processions. Almost royal deference was paid him—in one place he was honored by a guild as only kings had been before. But in one or two towns the president was not welcomed, because his emphasis on defense had antagonized Socialist municipal authorities.

THE BRIAND CABINET. The immediate consequence of M. Poincaré's election to the presidency was the resignation of the old ministry. On January 18 M. Briand was asked to form a new cabinet. Within three days M. Briand had formed his ministry as follows: President of the council and interior, M. Briand; justice, M. Barthou; public instruction, M. Steeg; war, M. Etienne; marine, M. Baudin; foreign affairs, M. Jonnart; finance, M. Klotz; colonies, M. Jean Morel; agriculture, M. Fernand David; commerce, M. Guist'hau; public works, M. Jean Dupuy; labor, M. René Besnard. The ministerial declaration read January 24 emphasized especially electoral reform, the income tax, the reform of the *conseils du guerre*, and military defense, and promised legislation to give workmen greater liberty of general organization, and the modification of the trade-unions law of 1884 by the inclusion of the right of property. Following the reading of the declaration in the chamber, a vote of confidence received 324 affirmatives. M. Briand then devoted himself to the most important task of defending electoral reform before the Senate.

ELECTORAL REFORM. The electoral reform bill passed by the Chamber July 10, 1912, was considered by a committee of the Senate in February, 1913. The bill provided—as noted in the YEAR BOOK of 1912—for departmental *scrutin de liste* with representation of minorities, i.e. a compromise between proportional representation and the small-district majority system. The committee was hostile from the outset, and unalterably opposed to the representation of minorities. Instead, it proposed to replace the present *scrutin d'arrondissement* by a *scrutin* *de liste*, with majority-rule applied to electoral colleges, each of which would elect 3, 4, or 5 deputies. The discussion of the committee report on electoral reform was begun in the Senate on March 13. The opposition to proportional representation was particularly bitter; M. Maxime Lecomte going so far as to call proportional representation a machine of war directed against the republic. This seemed to be the attitude in general of the followers of M. Combes and of M. Clémenceau, and it was early apparent that the reform would be wrecked by an anti-clerical Radical-Socialist combination.

The crisis came on March 18. M. Briand pleaded the cause of electoral reform for two full hours in the tribune of the Senate. He made it clear that proportional representation was not unrepublican, that MM. Monis, Caillaux, and Combes had admitted the justice of it. And then he went on to explain the danger of the purely negative course adopted by the Senate commission, and implored the Senate not to break with the Chamber—for should the Senate reject the Chamber's bill, it would mean a deadlock. "Thirty-four times the electors have declared themselves in favor of proportional representation; twelve times they have declared in favor of the representation of minorities;" and it would not do now to refuse them. M. Briand was answered by M. Clémenceau, the "cabinet-breaker." M. Clémenceau feared that the Republican majority would be endangered by representation of minorities and insisted on majority rule. The Senate then proceeded to consider article I., "The members of the Chamber shall be elected by *scrutin de liste*"; to which M. Peytral had offered the amendment: "According to majority rule, no candidate being elected who shall have fewer votes than his competitors." This amendment, M. Briand declared, would preclude the possibility of compromise and conciliation with the Chamber, and would mean the resignation of the ministry. Heedless of the warning the Senate approved the amendment by 161 to 128 (with 11 abstentions). It is interesting to analyze the vote: the Democratic Left gave 130 ayes (against M. Briand) and 28 noes; the Republican Union gave 23 ayes and 25 noes; the Republican Left gave 1 aye and 35 noes; 6 independents voted aye and 16 no; and 23 of the 24 votes of the Right were against the amendment. M. Briand was overthrown by over three-fourths of the Democratic Left coöperating with half of the Republican Union. That evening the president of the council resigned. Electoral reform had been defeated, for the time being.

THE BARTHOU CABINET. M. Barthou, the successor of M. Briand, was looked upon as an emergency-man to put through military reforms, without a permanent policy. He selected a ministry in which there were 5 members of the Democratic Left, 2 of the Republican Union, 4 of the Radical-Socialist group, 1 of the Republican-Socialist, and 4 of the Radical Left. The portfolios were distributed as follows: President of the council and public instruction, M. Louis Barthou; justice, M. Ratier; foreign affairs, M. S. Pichon; interior, M. Klotz; war, M. Eugene Etienne; marine, M. Pierre Baudin; finance, M. Charles Dumont; public works, M. Thierry; commerce, M. Massé; agriculture, M. Clémentel; colonies, M. Jean Morel; labor, M. Henri Chéron. It will be observed that five members of the Briand cabinet had been carried over. The ministerial declaration, read on March 25, gave first place to national defense and the three-year bill. An attempt would be made to reconcile representation of minorities with the principle of majority rule. The ministry would insist upon the adoption of measures for school-attendance and for the protection of the lay school "against outrages, campaigns, and manœuvres which are becoming more and more intolerable." The income tax was incorporated in the ministerial programme. In foreign affairs, the ministry would seek the pacific regulation of the Balkan conflict. The declaration was poorly received in the Chamber; criticisms were numerous, and M. Barthou was interrogated until he admitted that he would accept electoral reform with representation of minorities, but without the quotient. The vote of confidence was alarmingly slender: 225 and 162, and almost 200 abstentions.

A month's adjournment of the Assembly gave the political atmosphere a little time to cool. When the session was reopened on May 6 the army bill became the centre of attention.

THE THREE-YEAR LAW. Among the various measures for military reorganization included in the army bill, by far the most important was the return to three-year service. That for the augmentation of the effective army it was necessary to exact three years of active service from all Frenchmen, without exemption, was the opinion unanimously expressed by the Superior Council of War on March 4, 1913. Two days later M. Etienne, minister of war, laid a three-year-service bill on the table in the Chamber, in the face of tumultuous opposition on the part of the Socialists. The project received speedy commendation from the municipal council of Paris (March 7), was incorporated in the programme of M. Barthou, and was adopted by the army committee of the Chamber on May 9.

Against the bill M. Caillaux for a Radical group, and M. Jaurès for the Socialists, led repeated and violent attacks. (See also SOCIALISM.) Three-years service would be costly, they said, to the state as well as to the poorer recruits, and it would be worse than useless. As a "nation in arms" France could defend herself; the augmented standing army was a burden and a danger to the republic. But M. Caillaux and M. Jaurès could not command a majority; they could only obstruct the bill by offering amendments and counter-projects. On June 26 M. Barthou exhorted the Chamber not to let politics interfere with the fulfillment of a "national duty," but possibly the plea had been heard too often; at any rate, it failed to prevent the presentation of still more counter-projects. On July 7 the government consented to an amendment voted by the Chamber to require equal service from all, not even excepting the heads of large families; and on July 8 the three-year law, article 18 of the military law, was voted by 344 to 220. Then a proposal to enlist recruits at the age of 20 was considered, and after an acrimonious discussion, passed on July 16, 376 to 199. Finally, at nidnight on July 19, the entire military law was passed by the Chamber by 358 votes against 204, M. Caillaux protesting in the name of the "noes."

The Senate began to discuss three-year service on July 31, and approved it on August 5. Despite a lively debate, M. Clémenceau was unable to prevent the passage of article 6, which provided for enlistment at 20 years. Article 12 also met with unsuccessful opposition, some of the senators thinking that the financial assistance given to the needy families of recruits was too generous, since it would cost the state 60,000,000 francs a year. Other objections were forestalled by a promise that a supplementary bill would later be brought in to rectify and complete the bill as at present formulated. The Senate then voted the whole of the military law by 254 to 37 on August 7, and on the following day the session ended.

The principal provisions of the law of August 7 were: (1) Every healthy male French citizen shall serve 3 years in the active army, 11 years in the reserve, 7 years in the territorial army, 7 years in the territorial reserve—in all 28 years instead of 25 as hitherto required. (2) A medical commission shall pass on the physical fitness of recruits. (3) For the support of the families of soldiers an allocation of 1 fr. 25 per diem shall be made, plus an additional fr. 50 for each child. (4) Although no exemptions are made—except in the case of invalids—students and apprentices may obtain a postponement of their term of service, and physicians, pharmacists, and veterinaries may serve two of the three years in their professional capacities rather than as common soldiers. (5) Students in the *École Polytechnique*, in the *École de Saint-Cyr*, and in the *Écoles du Services de santé* at Lyons and at Bordeaux, are required to spend two months in actual military manœuvres after the first year of study, and as non-commissioned officers after the second. They agree to spend 8 years in the service of the state, or else perform 2 years of service as sublieutenants of the reserve, after graduation. (6) Students in non-military institutions must serve three years but may enlist at the age of 18 or postpone enlistment until after graduation. (7) Recruits will ordinarily be incorporated in the army at the age of 20. (8) The number of absentees must never exceed 10 per cent. of the legally-determined effective force. (9) The law does not apply to the classes of 1910, 1911, or 1912 (called in October, 1913). Another measure passed during the year restricted the jurisdiction of military tribunals (*conseils de guerre*) to military offenses and reformed the procedure.

The effect of the new law was to increase the effectives by 170,000 and to make possible an extensive reorganization of the army, with the creation of new units and an augmented peace strength estimated at 673,000; the non-recurring cost was placed at 725,000,000 francs and the increase in the annual expenditure at 170,000,000 francs. This additional strain on the already overburdened treasury was sharply criticised in the legislature; but more alarming were the manifestations of disapproval in the country at large. On March 15 at Paris, on May 18 at Paris, Toul, Belfort, Mâcon, Orleans, Rodez, Bourges, Nancy, Lérouville, and Rennes, at Paris on May 25, on July 13, on August 17, and on August 23, crowds met to shout "*à bas l'armée*," or soldiers mutinously protested against the third year of service. A communist and anarchist congress discussed the general strike as a possible means of combatting militarism. These and similar outbreaks were sternly suppressed as unpatriotic.

THE FALL OF BARTHOU. The three months of political inaction from August 7 to November 4 were interrupted by an event of primary importance. On October 16 a Radical and Radical-Socialist congress met at Pau to plan the overthrow of the Barthou cabinet. A considerable portion of the old Radical *bloc* in the Chamber, supported by M. Clémenceau and the Radicals of the Senate, had assumed an antagonistic attitude toward the last three ministries—those of MM. Poincaré, Briand, and Barthou;—they had opposed M. Poincaré's candidature in the presidential elections; they had wrecked M. Briand's electoral reform bill; and they planned now to destroy M. Barthou. Aside from personal rivalries, which play no inconsiderable part in French politics, there were three large issues between the Poincaré-Briand-Barthou policies and the sentiments of the congress of Pau. First and foremost was the question of anti-clericalism: the Pau congress was almost rabidly anti-clerical and had no patience with M. Briand's conciliatory tendency, with M. Poincaré's electoral reform (which might increase to clerical at the expense of the Radical representation), or with M. Barthou's tolerant attitude towards free schools. M. Barthou, it should be observed, subsequently declared before a banquet of the Educational League that the abolition of the free (Catholic) schools would be a blow to education, and that the need of "defending" the lay school was much exaggerated. The second point was the three-year law, vigorously opposed and decried by the Pau congress. The third measure at stake was the income tax; for although the present government had committed itself to the principle of a tax on incomes, the politicians assembled at Pau desired its immediate introduction. They therefore disowned and excommunicated the Radical ministers, and elected ex-Premier Caillaux to be president of the executive committee of the group, which now became known as the Unified Radical party. In outlining the policy of the new Radical-Socialist coalition, M. Caillaux demanded (1) a return to two-year service; (2) *défense laïque* (legislation against religious schools), and (3) an income tax. As leader of the Unified Radicals, M. Caillaux returned to redouble his attacks on the cabinet in the extraordinary session which opened on November 4.

M. Barthou was in no enviable position. He had strengthened the army, and had now to bear the taunts and reproaches of anti-militarists. He had promised to find a compromise on electoral reform that would suit both Chamber and Senate, a task well-nigh impossible. The Chamber was insistent and the Senate hostile; in the effort to conciliate both he allowed the *scrutin de liste* with representation of minorities to be hopelessly modified and mutilated in a new electoral reform bill. The size of the Chamber would be considerably reduced by fixing the ratio of representation at one deputy to 22,500 registered voters, and an equilibrium between proportional representation and majority rule was arrived at by means of a complicated scheme involving two different *scrutins*. Notwithstanding its defects, the bill commanded a majority of 108 in the Chamber and was presented to the Senate in November.

Meanwhile M. Barthou was encountering still greater difficulties in finance. The budget of

1913 had been passed on July 30 after many months of wrangling, during which time it had been passed back and forth between Chamber and Senate until it had become the laughing-stock of the press. The expenditure, amounting to more than 4,700,000,000 francs, was covered only by resorting to a variety of extraordinary expedients. For the new budget, the budget of 1914, no such devices were available. The sources of revenue were actually smaller, so that while the augmentation of expenditure amounted to 681,000,000 francs, the deficit reached the figure 794,000,000 francs. Eight hundred millions had to be obtained by new taxation or by loan. The latter was decided upon by M. Barthou, despite his repeated promises that the increased expense of the army should be paid by the rich, and the Chamber was asked to ratify an internal loan of 1,300,000,000 francs, of which 400,000,000 were charged to the "pacification" of Morocco. As might have been expected, the Socialist M. Jaurès attacked the project and arraigned the whole military and Moroccan policies of the government. It was not on the loan itself, but on the manner of issuing it, that M. Barthou met his defeat. In an inadvised moment he made a question of confidence of an amendment that the interest (*rente*) on the new bonds should be forever exempt from taxation; and justified his stand on the grounds that taxation of the *rentes* would lower the market price of the new securities, that exemption would benefit the thrifty middle-class *rentiers*, and that many other countries exempted government bonds from taxation. The explanation was insufficient to withstand the attacks of M. Caillaux, however, and in the vote on the amendment the government was defeated by a negative majority of 25. The Barthou cabinet immediately resigned, December 2.

THE DOUMERGUE MINISTRY. After attempting in vain to induce M. Ribot or M. Dupuy to form a ministry, President Poincaré turned to the Unified Radical group. M. Caillaux should have been the chief of the new cabinet, had he not still retained some of the unpopularity earned in 1911; he was therefore content with the portfolio of finance. M. Gaston Doumergue, senator for Gard, who had served in the ministries of MM. Combes, Sarrien, Clémenceau, and Briand (1909), was chosen as the nominal head of the government, but his dependence on M. Caillaux and upon M. Clémenceau was no secret. The portfolios were distributed as follows: Foreign affairs, Gaston Doumergue (Democratic Left of Senate); finance, Joseph Caillaux (Unified Radical of Chamber); education, René Viviani (Republican Socialist of C.); commerce, L. J. Malvy (Un. Rad. of C.); war, Joseph Noulens (Un. Rad. of C.); public works, Fernand David (Radical of C.); justice, Bienvenu Martin (Radical of S.); marine, Ernest Monis (Radical-Socialist of S.); colonies, Albert Lebrun (Democratic Left of C.); interior, René Renoult (Un- Rad. of C.); agriculture, Maurice Raynaud (Un. Rad. of C.); labor, Albert Métin (Un. Rad. of C.). It will be noticed that while the combination is dominated by the new Unified Radical party, and represents the tendency of the anti-clerical elements of the *bloc* to coöperate with the Socialists, it is nevertheless strangely discordant on the question of militarism. The Unified Radicals led by MM. Caillaux and Malvy had demanded a return to two-year service; in the Senate, however, MM. Doumergue and Monis had voted for the army law, and M. Clémenceau, whose powerful influence over the Doumergue cabinet was generally acknowledged, was an ardent champion of three-year service. The reversal of the army law was therefore improbable. On the question of electoral reform, and on exempting the *rente*, all but two of the ministers had voted in the negative. In their attitude towards the Catholic or free schools, all were strongly anti-clerical. If we look at the new governing group as an anti-clerical combination of the militarist Clémenceau and the anti-militarist Caillaux, it is not difficult to understand how the declaration of policy should be emphatic on *le défense laïque* while vague on other subjects, and should impotently recognize the army law and promise loyally to apply it—although the congress of Pau had demanded a return to two years' service. The ministers had been opposed to electoral reform; but presently at the urgent instance of the Chamber they agreed to push the electoral reform bill in the Senate. On the question of the income tax they adhered to their principles. M. Caillaux announced that the loan project would be dropped, and an income-tax bill was passed by the Chamber and presented to the Senate. Finally, the ministry took up the question of education. Ever since March the Chamber had carried on a futile discussion of the falling off in school attendance, and of measures for remedying it, and some lively debates had been occasioned by proposals for restraining the competition of private ("free") schools with public ("lay") schools. These proposals were now infused with new life and an education bill rapidly took shape. Article 21, passed by the Chamber in the middle of December by 367 to 188, imposed fines and imprisonment as penalties for using threats to keep children from attending *lay* schools and from using the prescribed text-books. Needless to say, the measure was bitterly assailed as an exceptional law, inasmuch as it laid no penalty on the use of threats and menaces to deter parents from sending their children to free (i.e. Catholic) schools.

THE BRIANDISTS. Perhaps the most formidable critic of the new régime was M. Aristide Briand. Speaking at St. Etienne, M. Briand exposed the inconsistencies of the Unified Radical cabinet; it was attempting to revive anti-clerical fanaticism, he said, and diverting attention from the true needs of the republic, viz., a firm foreign policy, a strong army, and social legislation. Late in December it was reported that M. Briand had induced over a hundred senators and deputies, including MM. Barthou, Pichon, Klotz, Millerand, and Dupuy, to form a new group—the Democratic Entente—with patriotism and social betterment as watchwords and the Unified Radicals as enemies.

FOREIGN AFFAIRS. The Dual Alliance might well have been weakened by the strain which the Balkan War placed upon international relations, had not there been at St. Petersburg an able and loyal defender of the Franco-Russian alliance. On February 20 M. Delcassé was named ambassador to Russia by M. Poincaré, to the great pleasure of all advocates of the Entente Cordiale. A less favorable impression was created by the establishment of the

Doumergue cabinet, with M. Doumergue as minister of foreign affairs, inasmuch as he and his associates were not ardent Russophiles. King Constantine of Greece visited Paris in September and was received at the Elysée by M. Poincaré. The king of the Hellenes was none too cordially welcomed after his tactless eulogy on German military methods (see Germany, *Foreign Affairs*), and although he praised the military mission of the French general Eydoux, the French press could not entirely forgive him. The jealousy exhibited in this case was but one manifestation of the ill-feeling between France and Germany. During the year both nations increased their armies; in both parliaments patriotic orators alluded to the enemy across the Vosges; and in both countries the press was ready to make much of slight annoyances. The suppression of the *Souvenir Alsacien-Lorrain* again brought the Alsatian question into prominence. This and the later Zaberne, or Saverne, incident are treated under Germany. There were besides, several vexatious occurrences on the Franco-German frontier. On April 14 three Germans were insulted by French students at Nancy. The French government promptly investigated the matter and removed several officials for not protecting the Germans from affront. On April 22 a German military biplane landed inside the French frontier at Arracourt, and again a German dirigible trespassed on French territory. In order to prevent such accidents, M. Jules Cambon, the French ambassador at Berlin—who, by the way, resigned in December—called the attention of the German government to the inconveniences arising from the too frequent descent of foreign airships on French soil. It was hoped that more amicable relations might be cultivated by the Franco-German Interparliamentary Conference held at Bern on May 11 at the invitation of Swiss politicians. There were present 144 French, but only 44 German parliamentarians, and these mostly Socialists. Not much was accomplished, however, beyond the formation of personal friendships and the adoption of a resolution in favor of peace, friendship, and smaller armies. The Franco-Spanish treaty relative to Morocco, discussed in a previous Year Book, was unanimously approved by the French Chamber on March 7, and by the Senate on March 29. For a discussion of the drawing together of France and Spain, see Spain.

Miscellaneous. After passing the three-year military service law, the Senate, fearing that the production of coal would fall off, amended the miners' eight-hour bill—to allow each miner to work 150 instead of 30 hours overtime per annum. The miners of northeastern France thereupon went out on strike; but were induced to return to work by promises of increased pay.—A large bell was presented by the Pope to the Cathedral of Rouen in honor of Joan of Arc.—In protest against the closing of religious schools, five bishops of Brittany issued a notable justification of Catholic education.—A disastrous railway accident at Melun on November 4 caused the death of thirty-two persons.

See also Morocco.

FRANCHISE, Reform of. See France, *Electoral Reform;* Austria-Hungary, *Hungarian Franchise Reform;* and Belgium, *Electoral Reform Agitation,* etc.

FRANCHISE BILL. See Great Britain, *Suffragists and the Franchise Bill.*

FRANCO-GERMAN INTERPARLIAMENTARY ORGANIZATION. See Arbitration, International; France, *History;* and Germany, *History.*

FRATERNITIES IN HIGH SCHOOLS. See Education.

FREE BAPTISTS. See Baptists, Free.

FRENCH, Anne (Warner). An American author, died February 4, 1913. She was born in St. Paul, Minn., in 1869. In 1888 she married Charles Ellis French. Her first published work, *A Woman's Will,* appeared in 1904. In the same year she wrote *Susan Clegg and Her Neighbor, Mrs. Lathrop.* During the next five years she wrote: *Susan Clegg and Her Neighbor's Affairs; Seeing France with Uncle John; Susan Clegg and a Man in the House; Seeing England with Uncle John; An Original Gentleman; In a Mysterious Way;* and *Your Child and Mine.* The last years of her life were spent at Marnhull, Dorset, England.

FRENCH ACADEMY. See Academy, French.

FRENCH EQUATORIAL AFRICA (formerly French Congo). A French possession on the west coast of equatorial Africa, made up of the Gabun Colony (capital Libreville), the Middle Congo Colony (capital Brazzaville), and the Ubangi-Shari-Chad Colony (capital Fort-de-Possel). The present area and population (1906), after deduction of 280,000 square kilometers, carrying a population of about a million, ceded to Germany following the convention of March 4, 1912, is officially given as 1,453,888 sq. kilometers and 9,000,000 inhabitants (a density of 7.8 to the sq. kil.). This takes into account the territory ceded to France by Germany from the Kamerun country. Gold, copper, and iron exist in commercial quantities. In 1910 there were 6 copper mines in operation, covering 14,500 hectares; output, 1600 kg. valued at 553,825 fr. The agricultural products and exports are rubber, cacao, palm kernels and oil, timber, kola nuts, piassava, coffee, manioc, etc. The total imports for the year 1911 were valued at 17,924,084 francs; of which goods to the value of 7,602,641 fr. came from France, 100,119 fr. from French colonies, and 60,221,324 fr. from other countries. The exports amounted to 29,115,389 francs, goods to the value of 14,093,486 fr. going to France, 493 fr. to French colonies, and 15,021,410 fr. to other countries. Total vessels entered (Gabun) in the 1910 trade, 88, of 168,566 tons (18, of 42,805 tons, French). Libreville and Loango are the chief ports. The 1909 general budget balanced at 6,137,000 francs; debt, Jan. 1, 1912, 14,784,215 fr. Post offices, 33. Telegraph lines, 2023 kilometers; wires, 2175 ks. Commissioner-general in 1913, M. Merlin (M. Nix, acting).

FRENCH ESTABLISHMENTS IN OCEANIA. A French colony in the southern Pacific, composed of widely-scattered groups and single islands. Area, 3065 sq. kilometers (Tahiti and Moorea, 1175, with 13,255 inhabitants; Tumamotu Islands, 860 and 3828; Gambier Islands, 30 and 1533; Marquise Sous-le-Vent, and other islands, 1000 and 11,947); total population, 30,563. Capital, Papeete (3617 inhabitants), on Tahiti. Imports (1911), 7,206,650 francs; exports, 7,519,119. Vessels entered (1910), 54, of 117,705 tons. Debt, January 1, 1912, 60,784 francs. Governor in 1913, W. M. Fawtier.

FRENCH GUIANA (CAYENNE). A French colony and penal settlement on the northern coast of South America. Capital and only seaport, Cayenne, with (1906) 12,426 inhabitants. Area, 88,240 sq. kilometers; population (March 5, 1911), 49,009 (a density of 0.6 to the sq. km.). The people are chiefly engaged in placer gold-mining. Imports (1911), 11,263,329 francs; exports, 11,903,627. Vessels entered (1910), 53, of 49,645 tons. F. E. Levecque was governor in 1913.

FRENCH GUINEA. A colony of French West Africa (q.v. for area, population, etc.). The lower regions, plentifully watered by streams descending from the Futa-Jallon, are exceedingly fertile and luxuriantly overgrown. Eastward sandy plateaux upon a granite substratum arise into the ranges of the Futa-Jallon—that home of contrast, caprice, and mystery, broken by smiling valleys, frowned on by naked peaks. A variety of mixed races inhabit this country. The Fullah descendants of the conquering Peuhl number about 650,000; they are socially organized under a head exercising spiritual and limited temporal power, and proselyte the propaganda of Islam by fire and sword. They are good herdsmen but disdain agriculture. The Kissiens (about 120,000) are timid, of small stature, fetishists, and practice agriculture; the Timénés (30,000) and allied groups are mainly fetishistic, quarrelsome, and degraded (the Bagas present a curious appearance, with ears growing near the tops of their heads). Less intelligent than the Fullahs, the Malinkés (about 500,000) are an industrious and prosperous race. The Soussons, or Diallonkés (385,000) are the superior of all the indigenous peoples in mentality; they are fetishists but Islam has made great progress among them. The natives manufacture apparel, rush mats, dressed leather, pottery, arms, and jewels. Rubber, palm nuts, and gums are gathered; and cultivation produces rice, millet, manioc, sesame, etc. Stock-raising is practiced on a large and scientific scale, notably by Fullah tribes. The mineral resources are as yet unascertained. The total imports for 1911 were valued at 18,337,307 francs and the exports at 19,610,656 (rubber, 15,311,685 fr.; live animals, 1,098,869; hides, 1,054,402; palm nuts, 965,298; gum copal, 270,005). Vessels entered (1910), 682, of 615,911 tons. A railway (588 kilometers) runs from Conakry to Kourassa on the Niger; open since January 1, 1911. Conakry, the capital, has 6623 inhabitants; Kankan, 7120; Boké, 3527; Kindia, 2280; Dubreka, 1195. The lieutenant-governor in 1913 was J. Peuvergne.

FRENCH INDIA. Five French dependencies in India. Area, 513 sq. kilometers; population (March 5, 1911), 282,472—a density of 550 to the sq. km. The towns are Pondichéry (the capital), Karikal, Mahé, Chandernagar, and Yanaon. Imports (1911), 8,618,302 francs; exports, 37,988,286 (oil seeds, raw cotton, pulse, etc.). Vessels entered (1910), 42, of 107,370 tons. The 1909 budget balanced at 2,725,000 francs. Debt, January 1, 1912, 4,684,392 francs. There are 30 kilometers of railway. Post offices, 5. Governor in 1913, A. A. Martneau.

FRENCH INDO-CHINA. A French dependency in southeastern Asia, composed of five states and a strip of territory leased from China detailed in the table below (population according to the census of March 5, 1911); D= density; Kwangchow-Wan is the leased territory.

	Sq. kms.	Pop.	D.
Annam	159,890	5,542,822	35.0
Cambodia	175,450	1,487,948	8.0
Cochin-China	56,965	3,050,785	54.0
Laos	290,000	631,839	2.0
Tongking	119,750	6,117,954	51.0
Kwangchow-Wan	1,000	158,881	159.0
Total	*803,055	16,990,229	21.0

* 310,060 square miles.

The capital is Hanoï (in Tongking), with 113,676 inhabitants. Population (1911) of Cholon, 191,655; Bin-Dinh, 75,000; Saïgon, 64,845; Pnom-Penh, 54,621; Hué, 50,000; Vien-tiane. 20,000; Haïphong, 27,000. The population includes Malays, Chams, Khmers (Cambodians), Annamites, Thais, and Chinese. Trade returns are for the colony as a unit, and are shown below in francs for three years:

	1909	1910	1911
Imports	249,753,677	238,686,288	244,142,680
Exports	273,034,618	290,546,912	250,146,499

Of the total imports, goods valued at 85,866,056 francs came from France, and at 6,986,460 from French colonies; of the exports, goods valued at 59,250,754 francs went to France, and at 1,939,012 to French possessions. The principal articles of export in the 1911 trade were rice, 117,470,000 francs; tin, 24,486,000; dried and salt fish, 12,556,000; corn, 9,704,000; hides. 7,997,000; cotton yarn, 7,824,000; coal, 6,579,000; pepper, 3,795,000; zinc ore, 3,739,000; live animals, 3,450,000; silver ingots, 3,027,000; cement, 2,829,000; cinnamon, 2,234,000; raw silk, 2,031,000. Vessels entered (1910), 2073, of 2,110,141 tons. The Saïgon-Mytho Railway has an extension under way to Cantho. Total railways in 1912, 1909 kilometers, including 467 kilometers in the Chinese province of Yünnan. The general 1912 budget was estimated to balance at 38,317,000 piasters. The debt stood, January 1, 1912, at 245,912,509 francs. The governor-general in 1913 was A. Sarraut.

HISTORY. An important step towards local self-government was taken in 1913. Native councils with advisory powers were instituted in each of the states of French Indo-China under the presidency of the superior residents. The innovation was the outgrowth of a liberal policy rather than a grudging concession, and the new councils were appreciative in spirit. The council of Tongking, for instance, in its first sitting passed a resolution expressing its loyalty to France and its gratitude to M. Sarraut.

FRENCH LITERATURE. Whether it be the pressure of national events or the natural development of recent tendencies, as characterized in the 1911 and 1912 YEAR BOOKS, the fact remains that traditional and Catholic France now has the upper hand of its socialistic, cosmopolitan, and agnostic opponents. As an indication of the dominant temper, we call attention to an article in the *Revue de Paris* (February, 1913) entitled "La Prochaine génération littéraire," which declares the time ripe for a new era of spirituality such as preceded the Romanticism of a century ago, with its militant hostility to the impious eighteenth century, and ready, too, for new Lamartine *Méditations* or a new lyricism like that of Hugo's *Odes et Ballades*. And we may cite also *Les jeunes gens d'aujourd'-hui* of Agathon (pseudonym for Massis and Tarde), with chapters entitled "Le gout de l'action," "La foi patriotique," and "Une renaissance catholique"; Riou's *Aux écoutes de la France qui vient*, with its call for a religious revival, protestant to be sure, but still religious; Hanotanx's *La France vivante;* and Muller and Picard's *Les tendances présentes de la littérature Française*. The three books which struck the representative note, to judge by the interest they aroused, were *L'Annonce faite à Marie*, a miracle play by P. Claudel; the novel, *La colline inspirée*, by M. Barrès; and, in the field of criticism, Bertrand's *Saint-Augustin*. The serious literary temper of the times is also evidenced by the success of Maeterlinck's *La Mort*.

THE DRAMA. Among historical dramas we may name Mortier's *Sylla*, Poizat's *Sophonisbe*, and the patriotic plays, the sensational *Alsace* of Leroux et Camille, the deeper *Servir* of Lavedan, and Kistemaeker's *L'occident*, with its broader scope. Notable, also, are the light plays, by way of protest against the gloomy realism of yesterday, witness the *Institut de Beauté*, by a great favorite of the public, Capus, who also offered a play *Hélène Hardouin*, with a melancholy ending not at all in his customary manner; and *L'Ingénu*, by Mérè and Gignoux, based upon a story of Voltaire's, and protesting against our present-day sophisticated notions of life.

Worthy of mention on different grounds are: Gold's moving dramatization of *Manon Lescaut;* Bergerat's sentimental and bright *Nuit Florentine* (which makes acknowledgement to Boccacio's *Mandragore*); Richepin's oriental *Le Minaret;* d'Annuncio's *Pisanelle*, written to afford Mlle. Rubinstein a chance to dance, and a decided failure; and *Kismet*, which no less a literary personage than Jules Lemaître honored by translating. Realistic plays, though persistently offered, are out of favor. Even Guitry could not save Nicomède's *Requins*, for instance; but Bénière's *Paraphe 1°* must be set down as highly amusing. Feministic problems find their way into many dramas of the day. Bernstein's *Le Secret* presents a type of the wicked woman shaped by modern tendencies; Suarès's famous *Cressida*, one of the most successful works of the year, not written for the stage but yet in dialogue form, is a succession of variations on the theme of the coquette; Fleg's *Trouble-fête* tells of an interesting heroine at first sorry to have a child, then sorry to have a husband, and finally thankful for both; Kistemaeker's *L'Embuscade* has a Lucretia Borgia (as seen by Hugo) as central attraction; Bataille's *Le Phalène* centres about a protagonist drawn, it is said, from Marie Bashkirtsef; and Grillet offers an interesting attempt at a reconstruction of the romantic period around the figure of Rachel. Other plays deal sympathetically with the peculiar difficulties women have to face under present social conditions. Brieux in *Seule* shows how hard it is for women to live alone, and E. Sée's *L'irrégulière* how an incapable man drags a woman down. A metaphysical and almost religious note is introduced in Dujardin's *Marthe et Marie;* and in Maeterlinck's *Marie-Madeleine*, which recalls his *Sister Beatrice;* and a decidedly religious note is struck in Francis Jammes's *Le brebis égaré* with its emphasis upon the thought of worldly love as a constant peril in a woman's life. Distinctly a religious piece is Claudel's orthodox and Catholic miracle play; already mentioned, and entitled *Annonce faite à Marie*, which has attracted European attention. The religious bent of the year's drama also produced the first stage representation of Chateaubriand's *Moïse*.

Here must be recorded the establishment in the Latin Quarter of Le Vieux Colombier, a small theatre, designed to be independent of financial considerations, and which has already brought out plays by Aeschylus, Shakespeare, Racine, Molière, Musset, and Claudel, and a thoroughly modern play, Schlumberger's *Les Fils Louverné*.. Last year saw the retirement of Jules Claretie as the director of the Comédie Française, and the appointment as his successor of Armand Carré, formerly of the Opéra Comique. Under the title of *Mademoiselle Gogo*, Paul Ginistry published a remarkable life of Mademoiselle Beauménard (1730-1799) of the Comédie Française.

POETRY. Poetry is not very abundant this year, but the quality is good. The "Prince des poëtes," Paul Fort, gives a new series of his *Ballades françaises, Chansons pour me consoler d'être heureux*. Saint Georges de Bouhélier, in his *Romance de l'homme* sings of his humanitarian and socialistic ideas in his usual poetic vein. Philéas Lebesgue, the peasant poet who plows year after year on his farm of the pays de Bray, celebrates in his *Servitudes* both the joys and the hardships of the man who lives in constant contact with the soil. The Comtesse de Noailles sings of death, after having sung life and the life sensual so superbly, in her *Les vivants et les morts*. Louis le Cardonnel offers new *Poèmes* in the fine mystic spirit that we know. E. Rochard's *Jésus selon les Evangiles* (with preface by Lemaître) was crowned by the Academy. Of more classical inspiration are Mazade's *Dionysos et les Nymphes;* and entirely hellenic the *Tablettes de cire* by the Comtesse de Brimont. Much has been made of the *Sourire d'Omphale*, by Edmond Porcher, who obtained the chief prize in French poetry awarded by the Academy; it had the honor of being read before the Academy in public session by Richepin. A series of other collections deserve mention, such as: Michaut, *Les fleurs de l'arbre de la science*; Caillard, *Rosiers sur la tombe* (songs of nature); Gojon, *La grenade*; Audigier, *La ville au bois dormant* (city of Senlis); A. Jean, *Pluie au printemps*; and N. Nouet, *Cœur avide d'infini*.

THE NOVEL. Of novels of really high quality there were, naturally, few this year, but the number of good works is unusually large. The present preoccupation with religion finds expression in the fine and artistically finished *La colline inspirée* of Barrès, with its picture of the mystic religious revivals of a generation since in Lorraine. The most striking of the patriotic novels is *L'appel au soldat*, by Ernest Psychari, Renan's grandson. It tells of a soldier whose inbred agnosticism and cosmopolitan humanitarianism melt away in the heat of a glowing Catholic tradition and of a fiery patriotism that make the hero yearn to die obscurely for the flag in any remote corner of Africa.

Patriotism also breathes through Régismanset's *Lauriers salis*, whose message is that, if war should come, no such event as the Commune should be permitted to render useless the devotion of French citizens; and it stirs also in the pages of M. Lair's *La reprise* where, in the case of a Frenchman married to a German woman, the patriotic motive in a patriotic crisis proves stronger than any other. Daudet's protest in *La fausse étoile* against political partizanship as a menace to the future also springs from patriotic soil. Colonial stories continue to be received with much enthusiasum, witness Baratier's *Épopées françaises*, Nolly's *Gens de guerre au Maroc*, and *Le chemin de la victoire*, and Daguerches's *Kilometre 83*, concerned with a railroad undertaking in Siam.

In glancing at the books, often by familiar names, that continue almost directly yesterday's literature, attention is especially invited to Mirbeau's *Dingo*, the sarcastic memories of his dog; to P. Adam's *Stéphanie*, which has something to say for a rather bourgeois and common-sense view of love in marriage; to Estaumier's *Les choses voient*, in which old pieces of furniture tell stories of low bourgeois passion which are comparable in gloom to Balzac at his gloomiest; to the elder Rosny's Zolaistic *Dans les rues*, which tells of the life of an *apache*, and is a sequel to *Les rafales* (see YEAR BOOK, 1912); to the younger Rosny's realistic *Sepulcres blanchis;* and to Paul Marguerite's *La maison brûle*, which shows once more how intolerable a wicked woman can make a man's life. One of the most remarkable of the realistic novels of the year was certainly E. Perrochon's *Creux des maisons*, with its pictures of peasants plucking something of happiness from the hardest conditions. Camille Marbo won the 5000-franc prize ("Prix de la Vie Heureuse") with the *Statue voilée*, a study of women who offer the hero different types of love, which might be thought of in connection with Flaubert's *Education sentimentale*; and Marc Elder, with his study of Britanny fishermen entitled *Peuple de la mer*, won the "Prix Goncourt." A highly favorable reception from the press was accorded Charles Géniaux's *L'Océan*, concerned with life on the northern coast of France, and setting a deep tragedy of love against the background of the sea. An author from the south of France, L. Rolmer in his *Les amours ennemis*, tells a story of frenetic passion and advocates an abandonment to the joys of life; and the same spirit is in E. Montfort's *Les noces folles*. V. Marguerite in *Rose des ruines* tells a delicate story of a man whom experience has taught to be happier in his second love than in his first; and Marcelle Tinayre has written, in *Madeleine au Miroir*, an interesting novel concerning the critical age in women. In Ferval's *Double amour*, we meet again in fictitious guise Mademoiselle de la Vallière and the story of her love for Louis XIV. Of marked originality is the much-discussed psychological interpretation in fiction of the mind of Henry IV.'s assassin—*Ravaillac*, by the brothers Tharaud, authors of *Dingley*. In *Celles qui travaillent*, Simone Bodève gives graphic scenes from the lives of women who struggle for a livelihood. Marguerite Audoux's *Suicide* has in large part appeared in *Cahiers d'aujourd'hui*.

Two noteworthy volumes of short stories are Miomandre's *D'amour et d'eau fraiche* and Reginer's *Plateau de laque*. The first novel of the poet, A. Bonnard, under the title of *Vie et amour*, consists of variations upon the theme of love. In *L'aventure de Dame Yolande*, Avinen has tried his hand at a story in the style of middle-age romance. The contrast between the wonderful love in a land of dream of a boy's imagination and reality is the theme of Alain Fournier's *Le Grand Meaulnes*, and Aubry's *L'homme sur la cime* brings into relief a like contrast between a man's lofty aspirations and the reality of his life. Truth and point are not wanting in L. Vaillat's *Modeste et Beauchassis*, where we read of an artist who shakes the dust of artificial Paris from his feet and repairs to Normandy in quest of genuine life, only to find his new surroundings quite as artificial, and more offensively so, than those he had left. A novel—which was promptly dramatized—is Marcel Prévost's *Les anges gardiens:* it is a sensational attack on the custom of employing foreign governesses for the children of the wealthy, these ladies being in the author's view often of an exceedingly undesirable character. Of somewhat like purport is Léon Cathlin's *Leur petit garçon*, with its picture of the bad effects upon a boy of the careless choice of a preceptor. The long experience of Jehan d'Ivray in the Orient finds an interesting and informing expression in her *Souvenirs d'une odalisque*.

BIOGRAPHICAL, CRITICAL, ETC. While original literature seems to hark back to the past for inspiration, there is a decided emphasis now in scholarly fields upon more modern subjects. Among other notable works proper to the above caption my be mentioned: Kunel, *Baudelaire en Belgique;* Bryand, *Huysman et le Satanisme;* Faguet, *Jeunesse de Sainte-Beuve;* Des Cognets, *La vie intérieure de Lamartine;* Faguet, *Rousseau artiste;* Brunetière, "Époque classique" of the *Histoire de la Littérature Française* and *Bossuet*—both from notes left by the great critic at the time of his death; Jusserand's *Ronsard;* and—a book of special interest to America—Chinard's *Amérique et rêves exotiques au 17° et 18° Siècle.*

The Academy awarded the "Prix de la critique littéraire" to Magne's *Voiture* (see YEAR BOOK, 1912), and the "Grand prix littéraire" went to Romain Rolland on the score of his *Jean-Christophe*.

Among the dead of the year are: C. Lemonnier, Henri Rochefort, J. Campion (the famous publisher), Lucie-Felix-Faure Goyau, E. Ollivier, P. de Coulevain, Jules Claretie, and Thureau Dangin, the Secrétaire perpetuel de l'Académie, who was replaced in this position by E. Lamy.

Monuments have been erected to Theuriet, Lamartine, Pouvillon, Corbière, Hugo (on the island of Guernesey), and Mendès. Centenaries have been celebrated, notably those of Veuillot, Amyot, and Diderot.

FRENCH SOMALI COAST. A French protectorate on the Gulf of Aden, between Eritrea and British Somaliland. The area is officially estimated at 120,000 sq. kilometers (46,332 sq. miles), and the population (1906) at 208,061 (2.0 to the sq. km.). The capital is Jibuti, with about 11,000 inhabitants. The imports in 1911 were valued at 32,620,638 francs, and the exports at 45,387,427 (coffee, ivory, hides, skins, etc.). Vessels entered (1910), 198, of 545,929 tons. The local budget for 1909 balanced at 1,373,000 francs. The railway from Jibuti into Abyssinia (total length 193 miles) has 81 miles in French Somali Coast. The governor in 1913 was A. J. Bonhoure.

FRENCH WEST AFRICA. A French government-general with headquarters at Dakar (since 1902), created by the decree of June 16, 1895; M. Chautemps being the colonial minister. By the decree of October 18, 1904, French West Africa was defined as including five colonies, the Niger territory being comprehended in the colony of Upper Senegal and Niger, and the civil territory of Mauritania. By the decree of September 7, 1911, to take effect January 1, 1912, the Niger territory was separated from Upper Senegal and Niger colony and became an administrative subdivision known as the Military Territory of the Niger, under a commandant. The area and population (March 5, 1911) in the table below are according to the 1912 issue of the *Annuaire statistique:*

	Sq. kms.	Pop.	D.*
Senegal	191,640	1,250,590	7.0
French Guinea	238,988	1,737,346	7.0
Ivory Coast	325,228	1,216,284	4.0
Dahomey	97,200	878,504	6.0
Upper Sen. & Niger Mil. Ter. of the Niger	2,166,478	6,036,198	3.0
Mauritania	893,696	225,154	0.2
Total	3,913,250†	11,344,076	3.6

* Density. † 1,510,900 square miles.

Other French authority gives 107,000 sq. kilometers for Dahomey; 1,300,000 for the Military Territory of the Niger; and 2,000,000 for Upper Senegal and Niger inclusive of the French zone of influence in the Sahara, or 819,000 for the administrative districts. Dakar, in Senegal, is the capital, with 24,914 inhabitants (2383 French).

The total imports in 1911 were valued at 150,817,649 francs (153,095,448 in 1910); of which goods to the amount of 67,573,618 francs came from France, 2,173,595 fr. from French colonies, 80,970,436 fr. from other countries. Exports, 117,125,103 francs: 58,552,060 fr. to France, 76,213 fr. to French colonies, 58,496,830 to other countries.

For shipping, railways, commercial and other details, see articles on the separate colonies and territories.

WIRELESS TELEGRAPHY. There is perhaps no place on the globe to which wireless telegraphy comes as a greater boon than to these African wilds, where distance and danger doubly isolate important posts in the hinterland and render the burden of wire maintenance difficult, perilous, and economically wasteful. Yet the first experiment in wireless telegraphy in Senegal proved unsuccessful and was abandoned, and it was not until January, 1906, that small stations were again opened at Dakar and Rufisque. A third post was established at Port-Etienne (Mauritania) in May, 1909, and a high-power station replaced the small one at Rufisque in October of the same year. The two stations cost 410,500 francs for installation and 90,000 annually for maintenance; the construction of a submarine cable between the two points would have cost for installation 4,425,000 francs and for annual maintenance 150,900 francs.

In 1909, in pursuance of a plan to extend the service the length of the (French) coast, permission was obtained from the Liberian government to establish a post at Monrovia. By September, 1912, the following stations were in operation: Port-Etienne-Rufisque, 770 kilometers; Rufisque-Conakry, 700; Conakry-Monrovia, 450; Monrovia-Tabou (Ivory Coast), 450. Under construction are posts at Grand-Bassam, 400 km. from Tabou, and Cotonou (Dahomey), 700 km. from Grand Bassam. Cotonou will complete the circle. A special coast station at Dakar was opened September 1, 1911, mainly for defense and maritime purposes. The establishment at Timbuktu of a great central radiograph station will solve the problem of trans-Saharan telegraphic communication, hitherto regarded as an unrealizable dream, because of the impossibility of laying or maintaining wires through forest and across desert infested by wild beasts and marauding nomads and torn by tropical storms.

The governor-general in 1913 was A. W. Merlawd-Ponty (October 18, 1904). The budget balanced (1911) at 56,250,000 francs. The debt stood January 1, 1912, at 156,277,336 francs.

FRIEDMANN'S ALLEGED TUBERCULOSIS CURE. See TUBERCULOSIS.

FRIENDS, RELIGIOUS SOCIETY OF. There are four bodies of the Friends—the Orthodox, the so-called Hicksite, the Wilburite, and the Primitive. The first named branch is the largest There were in 1913, 100,568 communicants, 90 churches, and 1325 leaders or ministers in this branch. In the Hicksite branch were 19,597 communicants, 211 churches, 99 ministers. In the Wilburite, 3880 communicants, 48 churches, and 47 ministers. In the Primitive, 171 communicants, 8 churches, 10 ministers. The Hicksite branch is known also as the Liberals. This society was unusually active during the year. A summer school lasting two weeks was held in Philadelphia. The biennial general conference will be held from September 2 to 8, 1914, at Saratoga Springs.

FRUIT RAISING. See HORTICULTURE.

FUEL. See CHEMISTRY, INDUSTRIAL.

GAILLARD, DAVID DU BOIS. An engineer of the United States army, died December 5, 1913. He was born at Fulton Post Office, Sumter, S. C., in 1859, and graduated from the United States Military Academy in 1884. In the same year he was appointed second lieutenant in the corps of engineers. In 1887 he studied at the Engineers' School of Application and in the same year was made first lieutenant. From 1887 to 1891 he acted as assistant to Captain William M. Black, chief engineer in charge of various surveys and harbor improvements in Florida. He was a member of the commission which surveyed the international boundary between the United States and Mexico (1891-94), and from 1895-98 was in charge of the Washington aqueduct. During the Spanish-American War he served in the United States and Cuba. He was chief engineer of the department of Santa Clara, Cuba, for several months in 1899, and from the latter part of that year to 1901 was assistant to the engineering commission of the District of Columbia. For two years following he was in charge of all river and harbor improvements on Lake Superior. In 1903-04 he was a member of the general staff corps, and engineer officer of the northern division, and from 1904 to 1906 was on duty at the Army War College. After serving in the Philippines from August, 1906, to February, 1907, he was appointed in the latter year a member of the Isthmian canal commission and a director of the Panama Railroad. His first work at the Panama Canal was a supervision of the dredging of harbors, building of breakwaters, etc. On July 1, 1908, he became division engineer of the central division of the Panama Canal, comprising that portion extending from Gatun to Pedro Miguel. This division includes the famous Culebra Cut. In 1909 he was promoted to be lieutenant-colonel. Lieutenant-Colonel Gaillard was one of the chief aids of Colonel Goethals in the building of the excavation of the Culebra Cut, of which he had charge. This was one of the most stupendous engineering undertakings ever accomplished, and that it was done so quickly, notwithstanding the frequent landslides which prevented progress, was due largely to the efficiency and skill of Colonel Gaillard. He was able to remain at his task until the cut had been practically completed, but he had long suffered from overwork and climatic conditions at Panama. His death resulted from excessive application to his work.

GAMBIA. A British west African crown colony (69 sq. miles, 8807 inhabitants) and protectorate (4000 square miles, 152,000 inhabitants) on the river Gambia. Capital, Bathurst, on St. Mary's Island. The rainfall in 1910 was 28 inches, and the highest shade temperature was 112° at MacCarthy's Island in April and May. Products and exports are peanuts (£437,472 in 1911), palm kernels (£4748), wax (£1514), rubber (£836), and ivory (£215). Export of specie (1911), £215,573; total exports, £682,036. Imports of specie, £384,784; cotton goods, £130,324; kola nuts, £72,598; rice, £62,459; sugar, £12,611; spirits, £8513; etc.; total imports, £807,118. Revenue, £86,454; expenditure, £71,390. Tonnage entered and cleared, 480,911. Governor, 1913, Lieut.-Col. Sir H. L. Galway (Hon. Cecil Gwyn, acting).

GARBAGE AND REFUSE DISPOSAL. A garbage and refuse incinerator for San Francisco was completed during the year. The designs for the plant were made after a careful investigation of the amount of garbage, rubbish, and ashes collected in various parts of the city. The city was then divided into four districts, for each of which an incinerator was proposed in order to save length of haul of the material to be burned. One district is so sparsely settled that it will not need an incinerator for years to come. Two of the others were combined for the present and bids were asked for a 120-ton plant for each, one of the plants (North Beach) to be so arranged as to be capable of future enlargement to a capacity of 360 tons a day. The plant completed in 1913 is known as the Islais Creek Incinerator. Mixed refuse is brought to it in wagons, weighed, and then dumped into a concrete garbage pit holding 120 tons, or a full day's capacity of the furnaces. From this pit the refuse is lifted by an electrically operated grab bucket and traveling crane and moved to a position over steel containers, into which the grab bucket is emptied. From the containers the refuse is dumped, through sliding-bottom doors operated by rams, onto the drying hearths of the furnaces. After having been dried the refuse is raked forward onto the grates by stackers and there burned.

Each of the two 60-ton furnaces has four grates. The grates are separated by brick walls, pierced by arches, through which latter the gases of combustion pour to a combustion chamber where they are subjected to high temperature. From each of the two combustion chambers the hot gases pass to boilers, thence to tubular air heaters for the sake of utilizing still more of the heat of the gases. Finally the gases, now relatively cool, go to a dust-settling chamber and to and up a reinforced-concrete chimney, 9 feet in internal diameter and 150 feet high. The clinker, remaining after the refuse is burned, is dropped into a chamber beneath the grates, then pushed by a ram through doors into a car and conveyed to a crusher. The crushed clinker is moved by a conveyor and a continuous bucket elevator to a revolving screen, which grades it into ½, 1½, and 3-inch sizes, after which it is dropped into storage bins. From these it is drawn for use in making concrete. To maintain a high temperature in the furnaces forced draft is used. This is supplied by a pressure blower which takes air from those parts of the building where the air may be foul. The air is forced through the air heater already mentioned, and then goes by means of ducts to the base of the clinker chamber beneath the furnace grates and up through the hot clinker, which it helps cool, and on up through the grates, and the refuse upon them. The boilers already mentioned were expected to produce about 300 horse power, together. Some of their power is used for steam-driven and some for electric-driven machinery, and some for heating and lighting the plant. Later on it was expected that surplus power would be used in conjunction with a municipal power plant. The steel framework of the building which houses the furnaces was designed to resist possible earthquake stresses, as was also the reinforced-concrete chimney. The concrete walls of the building and the concrete chimney were finished with a cement gum, by means of which cement or cement mortar is applied by air pressure. The buildings are in the old Spanish Mission style of architecture, with red-tile roofs. Cleanliness was had in mind in designing the interior of the buildings.

Although San Francisco and some other cities were building modern British types of garbage and refuse incinerators, the garbage of most of the larger cities of the United States continued to be disposed of by the reduction process. Except in the cases of Cleveland and Columbus, Ohio, the reduction plants were owned and operated by private companies, and until quite recently the cities paid the contractors for treating the garbage, although the latter got more or less return from the grease and fertilizer base which the reduction process yielded. In August, 1913, New York City awarded a garbage reduction contract under which the contractor agreed to pay the city for garbage delivered at the water front of Manhattan, Bronx, and Brooklyn boroughs, $62,500 for the first year, $87,500 for the second year, and $112,500 for the third year. The city had the option of continuing the contract for two additional years at the rate for the third year. The contractor agreed to build a plant with a capacity sufficient to treat 2000 short tons of garbage a day. The estimated amount of garbage delivered to the former contractor in 1912 was 345,000 tons for the entire year. The former contractor was paid $50,000 a year for garbage disposal and bid $130,000 a year for the new five-year contract. The price under both contracts included the cost of transportation by water to the reduction plant on an island in Jamaica Bay, not far from Coney Island and Far Rockaway.

During the year Los Angeles let a ten-year garbage-reduction contract, under which it was to be paid 51 cents per ton for all garbage which it delivered to the contractor at a single point within the city. Free disposal of garbage by the reduction process was secured by the city of Springfield, Mass., in 1913. The city collects the garbage and delivers it to the reduction plant without cost to the contractor. The plant is built on land owned by the city and leased to the company. At the end of ten years the city may either take over the plant for $50,000 or continue the contract for ten years more, and then take the plant without any payment. The plant treated about forty tons a day in the summer of 1913, and at the close of the year it was being enlarged. The contracts, combined with the reported profits from the municipal plants at Cleveland and Columbus gave rise to hopes that cities may hereafter be relieved of the cost of garbage disposal, even if its collection does involve considerable expense. It should be noted, however, that neither of the plants called for by the New York and the Los Angeles contracts was in operation at the close of the year, so the success of these particular contracts has yet to be demonstrated. Moreover, there were difficulties over garbage-reduction contracts at Philadelphia, Chicago, and St. Louis during the year, which gave reason to believe that the time had arrived for serious question as to the need of reform in garbage-reduction contracts. In the past most of these contracts had been drawn without competent engineering advice—on behalf of the city, at least. Besides this serious danger another one lies in the shortness of most of the garbage-reduction contracts. The Philadelphia contracts were for one year, and rarely are any garbage-reduction contracts for more than five years. Such short-term contracts mean that the contractor must either recover his capital investment in a brief period or else run great risk of loss—unless he feels certain that his political friends have the willingness and power to see that his contract is renewed on favorable terms when it expires. At Chicago, the city temporized over letting a new contract for garbage disposal until finally the old contract expired and the contractor shut down the garbage-reduction plant on October 1, 1913. Steps to buy the plant were taken by the city, but the purchase had not been completed at the end of the year and the city was getting rid of its garbage by make-shift methods. At Philadelphia, it should be stated, the city seized and itself operated the contractor's reduction works.

In Europe the almost universal practice still was to mix garbage with ashes and rubbish and burn the whole in refuse destructors—that is, where any improved means of disposal had been adopted. It was reported during the year that the health department of the State of Victoria, Australia, had served notice on thirty-two municipalities to abandon refuse "tips" or "dumps" and install destructors. So far as known, this was the first order of the kind issued in any part of the world.

GARDINER, John Hays. An American educator and writer, died May 15, 1913. He was born in Gardiner, Me., in 1863, and graduated from Harvard University in 1885. He studied law at the Harvard Law School in 1886-87. In 1892 he was appointed instructor in English in Harvard University, filling this chair until 1900, when he became assistant professor. He was the author of *Forms of Prose Literature* (1900); *Elements of English Composition* (1902); *The Bible as English Literature* (1907); *Manual of Composition and Rhetoric* (1907).

GAS, Natural. The year 1912 was one of greatest prosperity in the production of natural gas, and was remarkable for the making of high industrial records. Important features were increased production, the extension of pipe lines to new communities, consequent increased consumption of gas for both domestic and industrial purposes, and increased prices. One feature of particular interest was the completion of the pipe line which conveys natural gas from the Buena Vista Hills of Kern County, Cal., to consumers in the city of Los Angeles and the surrounding towns. This line was built under great difficulties and at great cost.

The total production of natural gas produced in the United States in 1912 was 562,203,452 cubic feet, valued at $84,563,957. This compares with 512,993,021 M. cubic feet, valued at $74,621,534 in 1911. The largest quantity was produced in West Virginia, 215,785,027 M. cubic feet, valued at $29,064,968. Pennsylvania produced 112,149,885 M. cubic feet, valued at $18,539,672. Oklahoma was third as a producer with 73,799,319 M. cubic feet, valued at $7,406,528. Other States producing large quantities were Ohio, Kansas, New York, California, Texas, Illinois, and Indiana. Of the total production in 1912, 337,550,875 M. cubic feet were used for industrial purposes, and 193,454,802 M. cubic feet for domestic purposes.

Natural gas is produced in many foreign countries, the most important of which is Canada. The production in that country in 1912 was valued at $2,263,700. There is also a considerable production in Galicia, Hungary, and Italy. The amount of gasoline produced from natural gas in the United States in 1912 was 12,081,179 gallons, valued at $1,157,476. To make this, 4,687,796,329 cubic feet of gas were used.

GAS ENGINES. See Internal Combustion Engines.

GASES, Discharge Through. See Physics.

GAUL, Alfred. An English composer, died September 13, 1913. He was born in Norwich, England, in 1837, and studied music at Cambridge University. He acted as organist in several cities, and in 1887 became conductor of the Walsall Philharmonic. Up to a short time before his death he was teacher in and conductor of the Birmingham and Midland Institute, and a teacher in several other institutes. He was the author of the oratorio *Hezekiah,* and the cantatas *Ruth* and *The Holy City.* The last named is by far the best known of his works. He wrote also a number of trios, duets, and psalms.

GAYNOR, WILLIAM J. An American jurist and public official, died at sea, September 11, 1913. He was born in Whitestown, Oneida County, N. Y., in 1851. His father was an Irish farmer who was prominent in the early abolitionist movement, and was a follower of Beriah Green and Gerritt Smith. The son was baptized in the Roman Catholic Church. He received his education in the Assumption Academy and in the Whitestown Academy. For a time he studied theology, and went to the Christian Brothers College in St. Louis. After three years there, he visited California, Mexico, and the Isthmus of Panama, returning thence to the East, and for a time teaching school in Boston. He then decided to study law, and in 1873 removed to Brooklyn, where he worked as a newspaper reporter to support himself while he studied law. He was admitted to the bar in 1875, and went to live in Flatbush, a section of Brooklyn which at that time was entirely in the hands of corrupt politicians. The young lawyer began at once to oppose these conditions, and he wrote and spoke so effectively that threats were made that he would be assassinated. In spite of this he persisted, and as a result of his efforts, drove the unlicensed saloonkeepers out of the village, and put up and elected a reform citizens' ticket. He was made a police commissioner of Flatbush. This was the first work of a long series of his crusades against lawless persons. In 1885 he removed to Brooklyn proper. Here he found conditions much the same, but on a larger scale than he had found them in Flatbush. The city was governed by a political ring headed by Hugh McLaughlin. Mr. Gaynor, acting as a citizen, opposed the scheme of McLaughlin's, whereby the latter proposed to sell the city for $1,500,000. property which had been purchased for $185,000. A suit was begun and carried through every court to the highest. This resulted in the defeat of the ring, and exposure of conditions under McLaughlin. His next crusade was against the elevated railroad of Brooklyn, which had up to that time succeeded in avoiding the payment of taxes. Through his efforts, these roads were obliged to pay more than $1,000,000 in back taxes. He had by this time become one of the most conspicuous figures in New York State, and in 1893 was elected judge of the Supreme Court. During this campaign he became a national figure. As a result of his successful efforts against John Y. McKane, a notorious politician who was at that time the virtual master of Coney Island (McKane's methods included the padding of the voting lists and the stealing of ballots), Mr. Gaynor warned him that if he endeavored to debauch the ballot in the election of 1893 he would be sent to prison. McKane defied these threats and defied the law. On election day, Mr. Gaynor had the polls watched and the watcher armed with injunctions from the Supreme Court. McKane and his men assaulted these watchers and drove them away. Gaynor thereupon secured the appointment of special deputy attorney-generals by the governor, and with these undertook the work of prosecuting McKane. As a result McKane was sentenced to seven years in the penitentiary, and sixteen of his followers went to prison. Mr. Gaynor was now one of the most important Democratic politicians in the State, and was asked by David B. Hill in 1894 to run for governor. This he declined to do. Two years later he declined to be a candidate for mayor of Brooklyn. At the Democratic city convention of 1903 he was a candidate against George B. McClellan, and received 219 votes. There was a popular demand for him as a candidate for governor in 1904, but Tammany opposed him, and he failed of the nomination. He was nominated as a candidate for the Democratic party for mayor of New York in 1909. In this election he had the support of Tammany Hall. He had two opponents, Otto T. Bannard, Republican, and William R. Hearst, Independent. Gaynor's victory was sweeping. He received 250,378 votes, as compared with 177,304 votes for Mr. Bannard, and 154,187 for Mr. Hearst. The rest of the Democratic ticket, however, was badly defeated. As a result he became mayor, with the other officials of the city government either Republicans or Independents in politics. Once elected, the mayor lost no time in convincing Tammany Hall it would have no consideration at his hands. He selected for his advisers and department heads, able business men. He began to put into practice reforms which he had developed from years of experience, and he did away with many useless and expensive commissions which had existed under former governments. His simplicity, his genuine interest in life, and his shrewdness and ready wit, combined with his fearlessness, all endeared him to the people. On August 9, 1910, as he embarked on a steamship for a voyage to Europe, he was shot by James J. Gallagher, the bullet penetrating his neck, but the mayor, after weeks of suffering, recovered in a measure, and resumed his duties. He never recovered from the shock of the experience, however, and until the time of his death the effects of his wound became more and more apparent. In 1912 he allowed his name to be used as a candidate for the Democratic nomination for the presidency. He was bitterly opposed by Tammany Hall, however, and his name was not mentioned in the convention. In the campaign for mayor in 1913, he was refused a renomination by Tammany Hall, the Democratic organization in the city, but his supporters nominated him in a public meeting held in City Hall Park. Several days after he accepted this nomination, he sailed for Europe and died suddenly before the steamship had reached Queenstown. Mr. Gaynor, during his service as mayor, became known not only for his political and civic activities, but for his unique and remarkable letters which were published in all the newspapers, and were read throughout the country. These letters were written with a simplicity and humor that made them delightful reading. A volume of these letters was published shortly before his death. Mr. Gaynor left the Roman Catholic Church, and became a communicant of the Protestant Episcopal Church early in life.

GEMS AND PRECIOUS STONES. The principal gem mineral mined in the United States during 1912 was Montana sapphire, of which there was a large output for use both as gems and in mechanical applications. The development of the opal deposits at Humboldt County, Nevada, met with large success, and a quantity of magnificent gem material was obtained. The opal is of an unusual type, consisting of dark, translucent mineral with a variety of rich colors. The deposits promised to supply a gem equal if not superior in beauty to the opal from Australia. The total value of the gems of all sorts mined in 1912 was $319,722, a decrease of $23,980 in value from 1911. There were large changes in the production of some minerals. The output of opal increased from $1875 in 1911 to $10,925 in 1912; cunzike from $75 in 1911 to $18,000 in 1912; turquoise decreased from $44,751 in 1911 to $10,140 in 1912. In addition to the gems and precious stones already mentioned, the most important of those produced were tourmaline, valued at $28,200; agates, $9978; turquoise, $10,140; variscite, $8450; and peridot, $8100.

Diamonds. Diamonds are found in the United States in Arkansas, Indiana, Texas, and California. The total value of the output in Arkansas in 1906, the year in which the first discoveries were made, is estimated at $12,108. About twenty diamonds have been found in Indiana during the last thirty-five years in Morgan and Brown counties. These have been discovered in panning and washing for gold. A diamond was found in June, 1911, in Foard County, Texas. This was a rough diamond, rather brown, but fairly clear, and would yield a good gem weighing about one-quarter of a carat. Several diamonds were found in 1912 in Butte County, Cal., while washing gold in the placers of Cherokee Flats.

The production of diamonds during the fiscal year 1912 by the De Beers Consolidated Mines in South Africa amounted to 2,087,392 carats, as compared with 2,180,856 carats in 1911. Actual sales during the year amounted to $26,884,858. The feature of the South African diamond mining during 1912 was the absorption of the Voorspoed diamond mine in Orange River Colony by the De Beers Consolidated Mines. The production of diamonds in German Southwest Africa for the year ending March 31, 1912, amounted to 726,465 carats, which were sold for $4,712,831. The production from April 1 to September 30, 1912, amounted to 439,261 carats which sold for $2,938,539. See also under Diamonds.

Imports. The total value of the imports of diamonds and other precious stones in 1912 was $40,363,325. Of these, unset diamonds were valued at $22,865,685, and pearls at $5,130,376.

Birth Stones. In August, 1912, the American International Retail Jewelers' Association adopted a standard list of birth stones. The chief changes are the addition of alternative stones for certain months. Following is the list adopted: January, garnet; February, amethyst; March, bloodstone or acquamarine; April, diamond; May, emerald; June, pearl or moonstone; July, ruby; August, sardonyx or peridot; September, sapphire; October, opal or tourmaline; November, topaz; December, turquoise or lapis lazuli.

GENERAL STRIKES. See Belgium; Socialism; Strikes; and section *History* under various countries.

GEOGRAPHICAL SOCIETY, American. A body organized in 1852 for the purpose of investigating and disseminating new geographical information. It was established in New York for the benefit of commerce and navigation, and the institution opens sources of accurate information for public use in every part of the globe. In 1912 a new building for the society was completed at Broadway and 156th Street in New York City. Its annual publication bulletin contains over 1100 pages. The society coöperated in fitting out the Crocker Land Expedition under the command of D. B. McMillan, which sailed from New York in the summer of 1913. The officers are as follows: President, A. M. Huntington; vice-presidents, Walter B. James, John Greenough, Anton A. Raven; corresponding secretaries, William Libbey, Archibald D. Russell; recording secretary, Hamilton F. Kean. The society has about 1200 members.

GEOGRAPHIC SOCIETY, National. A society, founded in 1888, with the object of collecting and diffusing geographic knowledge, chiefly through its official organ, *The National Geographic Magazine*. It maintains research work both independently and in connection with other organizations and institutions. During 1913 an examination was made into the eruption of Mount Katmai and neighboring volcanoes in Alaska. The membership of the society is about 150,000. The officers are: President, Henry Gannett; vice-president, O. K. Tittmann; secretaary, O. P. Asutin; director and editor, Gilbert H. Grosvenor. The headquarters are in Washington.

GEOLOGY. The present review continues the plan adopted in preceding years—to outline some of the leading subjects of current investigation and discussion with especial reference to those having a broad relation to the general principles of the science. Recent progress was not marked by any extraordinary events that arrested attention or diverted it into new fields; still a great mass of useful information was added to the accumulated store as a result of intensive activity in all the various branches. One line of work which was being steadily advanced and which had a very important bearing upon the whole domain of geology was that connected with the areal map. The mapping and description of geological formations are more particularly the function of governmental surveys; in this country both State and Federal organizations were engaged upon the task and they were also carrying on many investigations of economic and scientific interest which were quite beyond the resources of the individual worker.

Geological Congress. The twelfth session of the International Congress which was held in Toronto from August 7 to 14, brought together a large number of geologists from all parts of the world. It was presided over by Dr. Frank D. Adams of McGill University. Preliminary to the meeting a committee of Canadian geologists, with the coöperation of leading authorities in different countries, had undertaken the preparation of an extensive account of the coal supplies of the world, as a companion work to that issued on iron ores, which was presented at the eleventh congress held in Stockholm in 1910. Further reference to the report will be made in another place. The attention of the members during the sessions was directed to a specified list of topics, which would be illustrated by Canadian conditions, such as the differentiation of the igneous rocks, origin and correlation of the Pre-Cambrian formations, glacial geology, and the influence of depth upon the deposition of the metallic minerals. It was decided to hold the next congress in Belgium in 1917.

Age of the Earth. The discovery of the radio-activity of the common rock materials was followed by a revision of previous estimates of the earth's age, made necessary on account of the influence of radium upon the temperature gradient. Some of these estimates have already been noted in the Year Book. There seemed to be general agreement among geologists that radio-activity was a factor that tended to lengthen the time beyond the limit fixed by physicists (for example, Lord Kelvin) on the basis of the refrigeration of a once molten globe. The latest contribution to the subject, in 1913, by Arthur Helmes, brought out the apparent anomaly that if the proportion of radium in the interior was the same as that in the surface rocks the earth should be growing hotter. The temperature gradient, also, should be much higher than the average that had been found. That the heat of the earth is not increasing, but the opposite condition holds, is attributable to the fact that radium is more concentrated in the acid rocks which are characteristic of the outer crustal zone. The crustal portion has a mean density of 2.8 and an approximate thickness of 30 miles. Below occurs an ultra-basic zone having a density of 3.4 and continuing to depths of from 600 to 900 miles. The internal core is regarded as consisting largely of iron with a density of 8. On the basis of the existing proportion of helium to lead, which are the end-products of uranium; the elapsed time since the beginning of the Archæn era was found to be from 1300 to 1600 million years. This was a much more liberal interpretation of the results than had been previously given.

Description of Faults. The lack of uniformity in the use of terms applied to the phenomena of faulting had been a source of much confusion to students, which rather increased with the development of knowledge and the introduction of many new ideas regarding the subject. The need for a revised nomenclature was emphasized in a series of articles that was published some time ago in *Economic Geology*, but the various suggestions as to the form it should take did not lead to any definite results. A committee appointed by the Geological Society of America in 1908 submitted a report in which there was incorporated a scheme that might serve as a basis for the accomplishment of the desired object. The changes recommended by the committee were too numerous to be mentioned here, although it may be said they were not so radical or so sweeping as those involved in some of the plans hitherto proposed. In fact, the committee stated that it had introduced no changes in terms which had a recognized meaning, and had endeavored to follow the best usage wherever terms were employed with different meanings. The classification advocated for adoption was based upon genetic and descriptive principles, rather than upon features of origin, which were considered as being insufficiently understood at present to afford a feasible plan.

Continental Uplift and Subsidence. The changes of relative position between the land and the sea, which have taken place on a great scale in the geological past and are no doubt even now in progress, were discussed by T. C. Chamberlin from the various view-points that have afforded a basis for previous explanations. The theory of internal stresses, such as were usually comprehended by the name diastrophism, was held to be unsuited to explain the broad adjustments between the land and the sea which govern the transgression of the latter and the formation of sedimentary terranes. Such adjustments are nicely balanced, requiring harmonious relations between the land movements and the sea, which could scarcely result from diastrophism. Also, the view that the adjustments arise from vertical stresses, superinduced by a change of load, was rejected, because the shifting of load by erosion in one place and deposition in another tends to produce a warp of the superstructure, rather than a movement that retains the parallelism between sea-surface and sea-bottom characteristic of continental shelves There is, however, another kind of stress that arises from the force of gravity acting upon the continental masses by reason of their elevation above the ocean beds. This gravitative stress involves a lateral component, equally whether the continents be considered as resting upon an inflexible base or whether they float, as it were, on a molten interior and are maintained in a state of isostatic adjustment. The lateral spreading force for a prism of rock of average density that corresponds to a difference of relief, as between a continental elevation of 6000 feet and a sea depression of 12,000 feet, or 18,000 feet in all, would be about 16,000 pounds per square inch; and in the case of the extremes of relief of about 30,000 feet, as exemplified by the Thibetan plateau and the adjacent Indian Ocean, the unbalanced lateral stress is around 25,000 pounds to the square inch. Such intense pressure in an isolated prism must be accompanied by lateral creep, as indicated by the phenomena of creep often noticed in the floors of deep mine-openings. The lateral stress in continental masses is supported to some extent by the buttresses of the submarine continental slopes, but how far such resistance to lateral spread may be effective is difficult to estimate. It would appear, however, that there may be an appreciable horizontal movement of the rocks, which is suggested by the lateral motions in faults and by the prevalence of tensional faulting over compression faulting. It is thought that the outward glacier-like creep of continents helps to maintain equilibrium with the building up of the continental shelf by sedimentation.

Theory of Metamorphism. The application of physico-chemical principles to the study of metamorphism was brought out in a very suggestive paper by John Johnston and Paul Niggli of the Carnegie Geo-physical Laboratory. The authors stated that the features conditioning the changes collectively described as metamorphism are the same as those determining chemical equilibrium, and hence come under the principle of the phase rule. The factors may be summed up under the heads of change of temperature, uniform pressure, stress, chemical composition, and speed of reaction. Metamorphism occurs whenever the original components become unstable by reason of changed external conditions. A knowledge of these factors may be used as a basis for the prediction of the character and significance of metamorphic processes, but there are elements of uncertainty involved owing to the lack of uniformity in temperature and pressure during the change. All kinds of metamorphism inclusive of contact, dynamo-metamorphism, etc., involve the same factors. While the application of physico-chemical principles is held to be a difficult matter, the opinion is expressed that experimental investigations on that basis may lead to important results.

ORIGIN OF THE IGNEOUS ROCKS. The derivation of the varied classes and types of igneous rocks from a few parent bodies or magmas is an accepted principle of modern geology. But students of the subject hold variant views as to the precise methods by which the magmas have been split up, or differentiated, into the resultant products. A number of papers, representative almost of an equal number of standpoints, appeared during the year. R. H. Daly advocated the force of gravitation acting upon the crystallizing materials as the leading factor. He also maintained that many species are the result of assimilation of the country rocks by the magma in its advance toward the surface, leading to "synthetic" magmas. Harker maintained that fractional crystallization was the principal agency, and conceived that a magma in process of crystallization may be pictured as having an open fabric like a sponge with the still molten matter occupying the pores. Under crustal stresses this interstitial liquid is squeezed out, and being of different composition than the consolidated material gives rise to a separate rock type. H. S. Washington described some cycles of eruption noted in the volcanoes of Sardinia, in which the first rocks formed had an acid character, the following ones an intermediate composition, while the last products were of basic character.

The alkaline rocks, which are designated oftentimes as the "Atlantic" type, on account of their prevalence within the Atlantic continental zones, are considered by C. H. Smyth to have formed from the sub-alkaline or "Pacific" magmas by a process of differentiation influenced by mineralizing solutions and vapors. Among these are water above the critical temperature, chlorine, sulphur dioxide, and other gaseous or volatile substances that are recognized as having an important relation to the origin of pegmatites. The alkaline rocks in fact show a degree of similarity to these coarse forms of granite, particularly in their content of the rarer elements.

VOLCANOES. A party of American geologists was organized in 1911 to study volcanic problems at Kilauea, with the particular purpose of bringing modern methods and equipment to bear on the almost insuperable difficulties of such an investigation. An account of the earlier work by the party was given by Perret. Among the results accomplished were accurate temperature observations of the molten lava in the crater, which necessitated a revision of previous data that had been obtained by indirect means. The lava in the crater bowl was found to have a temperature of 1050° C., and a possible range of from 1000° to 1200°. A thermo-electric couple of platinum and iridio-platinum was used, immersed from 30 to 50 centimeters below the surface of the lava pool. Previous determinations were made by noting the fusing point of metal wires in contact with the magma, a method rendered unreliable by the chemical reaction between the metal and the sulphur present in the lava. Wires of wrought iron and nickel melted quickly when immersed, although normally requiring a heat of 1300° C. for iron and 1450° for nickel. Samples of the molten lava were dipped from the pool and subjected to chemical analysis to discover the nature of the volcanic gases. These included chlorine, hydrochloric acid, sulphur dioxide, carbon dioxide, carbo monoxide, hydrogen, and nitrogen. Among the solids sodium and potassium chlorides and bitumen were found. The combustible nature of certain gasses may be noted as tending to confirm the reported presence of flames in volcanic emanations, although such phenomena were ascribed usually to reflection of the red hot lava upon the smoke clouds. According to Dr. Albert Brun, who analyzed the materials, whatever water vapor may have occurred was formed secondarily by chemical reaction during the escape of the gases into the atmosphere and did not issue from the depths. This conclusion is antagonistic to previous conceptions of igneous fusion and to prevalent theories of the active agency of magmatic waters in the formation of ore-bodies, and it will probably be contested. To the presence of gases Perret ascribed an important rôle in the upward migration of the lava from its source in the earth's interior. The gases naturally collect above the igneous body and there exercise a strong fluxing power upon the rock walls, tending to make a vertical channel toward the surface. Without their coöperation the igneous mass would be unable to make its way against the force of gravity and the cooling effects exercised by the contact with the walls. See also article VOLCANOES.

TEMPERATURE GRADIENT. A deep well was in progress of drilling near McDonald, in the natural gas region of western Pennsylvania. In May, 1913, a depth of 6299 feet had been reached, making it the deepest hole in this country, and, with one or two exceptions, the deepest in the world. Measurements of temperature were taken at intervals below 5000 feet depth: At 5150 feet the thermometer registered 110° F.; at 5220 feet 120°; at 5800 feet 140°; at 6000 feet 100°; at 6270 feet 156°. The fall in temperature at 6000 feet was ascribed by I. C. White, who reported the results, to cooling by expansion of a body of natural gas which was encountered at that depth. In the vertical distance of 1120 feet covered by the measurements there was an increase of one degree for each 24.4 feet of descent—a rate much higher than the average record for shallower holes. A flow of saline waters encountered at 6260 feet may be considered perhaps an instance of the so-called connate waters which were imprisoned in the rocks at the time of their deposition beneath the sea.

PRE-CAMBRIAN FORMATIONS. The classification of the Pre-Cambrian rocks was discussed by members of the international congress at Toronto. The principal feature, it would appear, was the lack of any uniform basis for comparing the rocks of different countries and even lack of agreement among geologists of the same country as to the proper standards for subdivision and correlation. One result of the discussion was the adoption of a resolution by the congress to the effect that countries having contiguous areas of these rocks should form international committees for the purpose of settling upon some standard of correlation.

Coral Reefs. Darwin's theory of the growth of coral reefs may be said to have lost much of its former prestige through the conflicting testimony brought forward in the last quarter of a century by Murray, Alexander Agassiz, and others. According to Davis the real test of the theory of subsidence, as propounded by Darwin, was given by J. D. Dana whose investigations in the course of the Wilkes expedition seem to have been generally overlooked. Dana's contribution consisted in placing a proper value upon the physiographic features of the central volcanic islands, which he showed were characterized by abrupt shorelines, cliffs, and deep embayments. These features denote the subsidence of a once elevated and deeply-eroded land surface. Where present they afford the strongest possible support to the explanation of barrier reefs, and probably also of atolls, by the upward growth of corals on a subsiding platform. The conclusion reached by Davis is that "the theory of subsidence deserves for a number of well-studied examples the acceptance that it once enjoyed and that it for a time lost."

Glacial Geology. A summary of the results of many years of study of the glacial phenomena of New York State was presented by Fairchild, who estimated the period of time since the ice retreated from the western section at 30,000 years. The last or Wisconsin ice epoch probably covered a period of 150,000 years in all, while the preceding Glacial and inter-Glacial epochs may have lengthened the whole time for the Pleistocene to 500,000 years or even much more.

The report of the international committee on glaciers for the year 1911 indicated that most European glaciers were in process of retreat, although in the Alps those on the French side of Mont Blanc had recently manifested a tendency to advance. Some of the Scandinavian glaciers were advancing, while others were shrinking. The glaciers on Mount Rainier retreated markedly in the period from 1901 to 1912. The Glacier Bay and Malaspina glaciers of Alaska had also receded; the Grand Pacific glacier in Glacier Bay lost an average of 3300 feet a year between 1907 and 1911 and since 1897 had retreated over 15 miles.

Ore Deposits. An analysis of the evidences regarding the formation of secondary silicate zones on the contacts of intrusive igneous rocks with limestones was given by W. L. Uglow. The subject has a close bearing upon the question of origin of the "contact" ore deposits which have been shown by recent work in the western mining regions to be a very common type of occurrence for iron, copper, and lead minerals. The main interest from the standpoint of origin of the minerals centers about the problem as to whether the silicates and the accompanying ores have been introduced by the igneous itrusions or whether their materials did not already exist in the limestones and have only been segregated and recrystallized by the influence of the heated waters and vapors set in motion by the igneous magma. The conclusion reached from the evidences was that the silicate minerals were largely the result of recrystallization of components that existed in the limestones.

The translation into English of the medieval classic *De Re Metallica* of Georgius Agricola was an achievement in which students of mining geology will be interested. In its original Latin the work probably has not been frequently consulted, and the German translation is difficult reading to all but those expert in technical terminology. The present rendering is the work of H. C. Hoover and L. H. Hoover.

Among systematic treatises on ore deposits to claim attention may be mentioned the encyclopædic work *Traité de Metallogenie* by the French geologist de Launay, and the American contribution, *Mineral Deposits*, by Lindgren. The issue of the second volume of the German treatise by Beyschlag, *Krusch and Vogt*, should also be noted.

Coal Resources. An exhaustive account of the coal supplies of the world appeared during the year under the auspices of the International Geological Congress. The work covers three large volumes and is a description of the occurrence of coal in 64 countries, each article being contributed by one or more experts for that country. Of general interest is the attempt to summarize the available supplies, the first that has been made on such a scale or with such reliable data. The available resources throughout the world are placed at 7,397,533 million tons, of which 4,000,000 million tons are bituminous, 3,000,000 million tons brown coal, and the rest anthracite. Of the whole amount, the United States is credited with something less than one-half, or in exact figures, 3,214,174 million tons. The other leading countries include Canada with a supply of 1,234,264 million tons; the United Kingdom with 189,535 million tons; Russia with 233,917 million tons; Germany with 85,551 million tons; and France with 17,585 million tons. The present rate of consumption for all countries is less than 1500 million tons, so that there appears to be an abundance of this fuel in the world, although some countries are making quite rapid inroads on their supplies.

GEORGE I., King of Greece. Assassinated at Salonika, March 18, 1913 (see Greece). King George was the second son of Christian IX., king of Denmark, and was born at Copenhagen in December, 1845. He became king of Greece as a result of the revolution of 1862, which brought about the departure from Athens of King Otho. The throne thus made vacant was first offered to Prince Alfred, afterwards Duke of Edinburgh. The British government, however, refused to allow the acceptance of this offer and it was then offered to the son of the king of Denmark, who accepted it on January 6, 1863. Shortly after his accession he was able to secure for his people, largely through the influence of Mr. Gladstone, a coronation gift in the shape of the Ionian Islands, which for nearly half a century had been a British protectorate. In October, 1867, he married the Grand Duchess Olga of Russia. In spite of constitutional and other difficulties, King George during the earlier part of his reign was unable to accomplish much for the advancement of Greece, but the system of brigandage was broken up, and railways and passable roads were built. On his own property at Tatoi the king showed his subjects an excellent example in farming, viticulture, and forestry. His success in these years was due largely to the assistance and coöperation of M. Tricoupis, his premier. In January, 1895, M. Tricoupis resigned office in consequence of a disagreement with the crown prince on a question of military discipline. He died fourteen months later, depriving Greece of his guidance at the critical moment of her history. The year 1896 was a great awakening of patriotic sentiment, which found Crete, and the conditions existing there, a fruitful field for its activities. After attempts by the powers to cope with the situation, war between Greece and Turkey broke out in 1897. The campaign was disastrous to Greece from the start and the government was obliged to pay to Turkey a war indemnity of $20,000,000. The state of the country after the conclusion of hostilities was deplorable, and the dynasty seemed in danger. A reaction, however, set in as a result of an attempt to assassinate King George on February 28, 1898. In the following summer the king made a tour through the country and was everywhere received with enthusiasm. In the autumn of that year the powers, on the initiative of Russia, decided to entrust Prince George with the government of Crete. He continued to hold this office until 1906, when he resigned, and was given the privilege of designating his successor. In October, 1908, the Cretan Assembly proclaimed union with Greece. This led to fresh complications, and the cautious attitude of the Greek government provoked an agitation in the army which came to a head in 1909. On July 18 of that year, a popular demonstration against the prime minister caused his resignation. His successor, M. Ralli, announced a programme of military and economic reform. The army, however, took matters into its own hands and in the name of the Military League placed M. Marvromichalis in place of Ralli. For the next six months the constitutional government was practically superseded by that of the Military League, and for a time the crown itself seemed to be in danger. The league insisted on the removal, as commander-in-chief, of Prince Constantine, heir-apparent, and the removal of the other princes from the army. The king had no choice but to consent. He was obliged to consent also to the removal of two other officers, who loyally resisted the mutiny of the troops under their command. The influence of the league, however, rapidly declined, and a reckless attempt to establish a naval directorship in Athens was quickly stopped. Another attempt by the army and navy to cause trouble in 1910 failed equally, owing to the firmness of the king.

Venezelos, the Cretan leader, suggested the creation of a national assembly and he and King George continued to work together for the regeneration of Greece. Venezelos took part in the negotiations which resulted in the Balkan League and in this had the steady support of the king. After the fall of Salonika, King George went to that city and made a triumphal entry in the early part of March, 1913. On March 18, in company with an equerry, he was returning from a walk, when he was shot by a Greek named Alexandre Skinas.

GEORGETOWN UNIVERSITY. An institution for higher education, under the auspices of the Roman Catholic Church, founded in Washington, D. C., in 1789. The students enrolled in the several departments of the university in the autumn of 1913 were 1533. The faculty numbered 175. There were no noteworthy changes in the faculty during the year, and no notable benefactions were received. The library contains about 150,000 volumes. The president is Rev. Alphonsus J. Donlon.

GEORGE WASHINGTON UNIVERSITY. An institution of higher learning in Washington, D. C., founded in 1821 as Columbian University. The enrollment in all departments in the autumn of 1912 was approximately 440. The faculty numbered 192. Profs. Ash, H. W. Wiley, and B. F. Moore resigned in 1913. Prof. Bedford Brown was appointed head of the department of architecture. The funds of the university amount to about $132,000, and the income to about $5300. There are about 45,500 volumes in the library. The president is Charles H. Stockton.

GEORGIA. POPULATION. The population of the State in 1910 was 2,609,121. According to the estimates of the Bureau of the Census, made in 1913, the population then was 2,736,737.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	4,066,000	63,023,000	$57,351,000
	1912	3,910,000	53,958,000	45,864,000
Wheat	1913	140,000	1,708,000	2,050,000
	1912	132,000	1,228,000	1,498,000
Oats	1913	420,000	9,240,000	6,283,000
	1912	364,000	7,571,000	4,921,000
Rye	1913	13,000	124,000	167.000
	1912	11,000	101,000	141,000
Rice	1913	500	16,000	13.000
	1912	900	27,000	24.000
Potatoes	1913	12,000	972,000	1,021.000
	1912	12,000	936,000	814.000
Hay	1913	250,000	*a* 350,000	6,265.000
	1912	234,000	316,000	5,372,000
Tobacco	1913	1,800	*b*1,800,000	558.000
	1912	1,400	1,162,000	349.000
Cotton	1913	5,328,000	*c*2,275,000	139,135,000
	1912	5,335,000	1,776,000	105,266,000

a Tons. *b* Pounds. *c* Bales.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $6,306,140, compared with $6,172,857, in 1911. The total production of coal in 1912 was 227,503 short tons, valued at $338,426. For the first time in five years, the coal production of the State showed an increase over the preceding year, noteworthy as with the exception of 1912 the production had shown a steady decrease since 1903. This was attributed to the withdrawal by the State of the convicts with which the mines had been operated. The scarcity of free labor in the somewhat isolated district had prevented the mines being worked to their full capacity. The State produces a small amount of iron ore. In 1912 this amounted to 135.337 long tons, valued at $227.282, compared with 207,279 tons, valued at $315,704 in 1911. The total value of clay products of Georgia in 1912 was $2,806,541, an increase of $170,161 over 1911. The principal product is common brick.

FINANCE. The total receipts for the fiscal year ending December 31, 1912, were $5,558.447, and the total disbursements were $5.450,284. At the beginning of the fiscal year, there was a balance of $618.923, and, at the end of the fiscal year, of $727,076. The chief sources of revenue are the general taxes, railroad tax, railroad rentals, and license fees. The chief expenses are for education, for the maintenance of State institutions, and for the expenditures of State government.

Transportation. The total railway mileage in the State on June 30, 1912 was 7166 single track, and 80 double. The railways having the largest mileage are the Central of Georgia, 1331; Atlantic Coast Line, 707; Seaboard Air Line, 744; Southern Railway, 909; Atlantic, Birmingham, and Atlantic, 484; Georgia and Florida Railway, 310; Georgia Railroad, 303; and the Georgia, Southern, and Florida Railway, 239.

Education. The total enrollment in the public schools of the State on December 31, 1912, was 571,230. Of these, 348,571 were white, and 222,659 were colored. The total attendance in the public schools was 357,243, of whom 226,914 were white, and 130,329 were colored. The total number of schools for white children receiving State aid was 4782 and for colored children 3058, or a total of 7840. The schools for white children giving high school courses numbered 1082, and for colored children 58. Teachers in white schools numbered 9053, and in schools for colored children 4052, or a total of 13,105. The total expenditures for educational purposes during the year was $6,158,526. Of this $5,094,130 was for the common schools, and $1,064,106 for higher education. The average annual salary for teachers in the State was $250.

Politics and Government. The legislature met in 1913. Most of the measures enacted were of local interest and importance. There was no election for State officers during the year. The term of the governor expires on July 1, 1915, but the next election for State officers is in October of 1914. The first election of a senator in any State in accordance with the Seventeenth Amendment, took place in the State on July 15, 1913, when Senator Bacon was reëlected without opposition. Not more than 10,000 votes were cast in this election. Senator Bacon's term expired on March 4, 1913, and he was holding over by appointment to await reëlection. On November 5 Judge Frank Park was elected representative from the second district to succeed S. A. Roddenbery (q.v.), deceased. On July 15 an inquiry was begun on the administration of Emory Speer, judge of the Federal district of southern Georgia, in accordance with charges made against him. On July 7 a resolution was introduced in the Senate. The chief basis of the charges were alleged abuse of his position as a Federal judge. These charges were considered by the judiciary committee of the House. Judge Speer denounced the inquiry as partisan, and declared that it was brought about by his attack on the spy system. On August 22 Judge Speer was allowed to attend meetings of the judiciary committee with counsel. The House on August 27 passed a resolution authorizing an inquiry into the charges. A committee from the House was appointed to investigate.

The close of the year saw an important event in the development of the negro race. On Sunday night, December 14, over 8000 negroes gathered in a giant mass meeting at the Atlanta Auditorium to raise funds and assure the building of a negro Y. M. C. A. The meeting was the first of its kind ever held in the South, and while all the money necessary was not raised, the plan was being rapidly pushed to completion, mainly by the negroes themselves, but with the coöperation of a number of well-known white citizens.

See also Liquor Regulation.

State Government. Governor, John M. Slaton; Secretary of State, Philip Cook; Treasurer, Wm. J. Speer; Comptroller and ex-officio Commissioner of Insurance, W. A. Wright; Attorney-General, Thomas S. Felder; Adjutant-General, J. Van Holt Nash; Superintendent of Education, M. J. Brittain; Commissioner of Agriculture, J. D. Price—all Democrats.

Judiciary. Supreme Court: Chief Justice, Wm. H. Fish; Presiding Justice, Beverly D. Evans; Associate Justices, J. H. Lumpkin, M. W. Beck, Samuel C. Atkinson, and H. W. Hill; Clerk, Z. D. Harrison—all Democrats.

State Legislature, 1913. Democrats: Senate, 43; House, 183; joint ballot, 226. Republicans: Senate, 1; House, 1; joint ballot, 2. Democratic majority: Senate, 42; House, 182; joint ballot, 224.

The State representatives in Congress will be found in the article United States, section *Congress*.

GEORGIA, University of. A State university for higher education, founded at Athens, Ga., in 1785. The enrollment in all the departments in the autumn of 1913 was 682. The faculty numbered 83. There were no noteworthy changes in the faculty during the year, and no important benefactions were received. The productive funds of the university amount to about $375,000, and the annual income to about $140,000. The library contains about 40,000 volumes. The president is D. C. Barrow, LL.D.

GERARD, James Watson. An American jurist and public official. He was born in Geneseo, N. Y., in 1867, and graduated from Columbia University in 1900. He studied law at that university, receiving the degree of LL.B. in 1902. In the same year he was admitted to the bar. He was for four years chairman of the Democratic campaign committee of New York County. In 1908 he was elected associate justice of the Supreme Court of New York for the term ending 1921. He was appointed ambassador to Germany by President Wilson.

GERMAN ANTARCTIC EXPEDITION. See Polar Exploration.

GERMAN EAST AFRICA. A German protectorate bordering on the Indian Ocean and lying between the British East Africa Protectorate and Portuguese East Africa. The area is officially estimated at 995,000, square kilometers (384,170 square miles). The native population is estimated as 7,510,800. The whites numbered (1912) 4866. There are government and mission schools.

On the German plantations are cultivated coffee, cacao, vanilla, tobacco, rubber, sugar, cotton, cocoanuts, and cardamoms. Gems are found, and there exist various mineral deposits. The imports in 1911 were valued at 45,892,000 marks (23,203,000 from Germany), and the exports at 22,438,000 (11,912,000). In 1910 the imports were valued at 38,659,000 marks and the exports at 20,805,000 (rubber 6,195,000 marks, sisal 3,011,000, copra 1,909,000, ivory 703,000, wax 672,000, etc.). The railways in operation at the end of 1912 had a total kilometrage of 1199. There were opened for traffic 146 miles of new railway in German East Africa during 1913, 42 miles in the Cameroons, and three miles in Togoland, making a total of 191 miles, as contracted, with an increase of 254 miles in 1912. This gives for German East Africa a total mileage of 2588. At the end of the year it was stated that the Tanganyika railway would probably reach Lake Tanganyika early in 1914, and that, shortly after, through traffic would be undertaken from Dar-es-Salaam to Kigoma.

The budget estimate for revenue 1913-14 was 54,755,315 marks (colonial revenue 16,901,628, imperial contribution 3,603,687, loans 34,250,000). Expenditure, 54,755,315 (civil administration 9,308,782, military 3,615,030, extraordinary —the amount of loans—34,250,000). The governor in 1913 was Dr. Schnee, residing at Dar-es-Salaam (about 26,000 inhabitants).

GERMAN EVANGELICAL SYNOD OF NORTH AMERICA. A religious denomination, founded in 1840 as the Evangelical Association of the West. Its present name was adopted in 1877. The strength of the denomination is greatest in the central and north central States, although it is represented in nearly all the States of the Union. In 1913 the communicants numbered 258,911; the churches 1326; and the ministers 1038. The church property is valued at nearly $14,000,000, and over $1,000,000 annually is spent for the maintenance of churches. Missions are maintained in India, where the communicants and adherents of the denomination number about 3500. The official organs of the demonination are *Der Friedensbote* and *The Messenger of Peace*, both issued from the Eden Publishing House at St. Louis. The denomination maintains Elmhurst College at Elmhurst, Ill., and the Eden Theological Seminary at St. Louis. There are charitable institutions for orphans, superannuated ministers, and the widows and orphans of deceased ministers. See RELIGIOUS DENOMINATIONS AND MOVEMENTS.

GERMANIC PHILOLOGY. See PHILOLOGY.

GERMAN LITERATURE. The literary life of Germany, like that of other countries, seems of late to centre in the drama. Of the numerous prizes offered by the Schiller-, the Kleist-Stiftung, and other funds created to encourage the deserving author, the majority go to the dramatist. Yet the distinction so acquired does not seem materially to strengthen their chances upon the stage. None of the prize-crowned dramatists of 1912 and 1913 have even remotely approached the success of Rössler's *Die fünf Frankfurter*, which has even been imported into America. It is almost pathetic to witness the efforts of writers of undeniable merit in other lines to win the favor of a theatrical audience. Their failures are innumerable; but hope persists and the lure of fabulous royalties and of the widest possible publicity is irresistible.

The year 1913 received its cue and keynote from the one-hundredth anniversary of Germany's uprising against Napoleon, and, although the memory of 1813 had been celebrated in lyric verse by Ernest Lissauer, in a novel *Deutschland marschirt* by Kurt Martens, and in other works, all artistic interest roused by the occasion was directed to the play written by Gerhart Hauptmann for the century exposition at Dreslau. This *Festspiel in deutschen Reimen*, staged by Reinhardt, was to be the dramatic event of the year. The poet, however, is of the younger generation, and that archaic sentiment which even in popular parlance in his country is significantly styled "Hurrah-Patriotismus," is alien to him. He sees the Napoleonic epoch in the perspective of our time, and skillfully removes the plot and its actors into a sphere where even the mighty of this world are only puppets in the hands of the Master. It was the most dignified expression of the new reading of life applied to events which shook the very foundations of Europe a hundred years ago. But the future sovereign of the German empire did not see the topic of the play in that light, and ordered the discontinuance of the performances.

DRAMA. While Gerhart Hauptmann has in his *Festspiel in deutschen Reimen* given new evidence of his creative imagination, Hermann Sudermann has in *Der gute Ruf* rearranged with the infallible symmetry of a kaleidoscopic contrivance characters and conflicts long familiar to the playgoer who has seen the long line of his works, beginning with *Sodom's Ende*, and has varied his favorite "honor" motive by setting it against a background of Berlin W. depravity. Carl Hauptmann, on the contrary, who has always suffered by comparison with his younger brother, has made enormous strides within the last few years, and the two plays published and performed this year have given him a place of honor among German dramatists of the first rank. *Die lange Jule* is a most powerful peasant drama, with the greed of possession as the central theme, and *Die armseligen Besenbinder*, a most poetical and fanciful "Marchendrama" with a great ethical truth. Max Halbe has hardly added to his reputation by his *Freiheit*, another play of the Napoleonic anniversary; neither his work nor George Hirschfeld's *Uberwinder* fulfills the promise of their early and brilliant débuts. Ludwig Thoma, the sturdy Bavarian, is amazingly prolific and his works are astonishingly even in quality. Since the success of his village drama, *Magdalena*, he has written an unusually strong play of family tyranny, *Die Sippe*, with a cleverly sketched provincial milieu. Frank Wedekind, after having sorely tried even his admirers with *Franziska*, which he chose to call a mystery play, has this year published a *Simson* in verse, which is a very powerful drama of jealousy. Herbert Eulenburg has had a number of performances to his credit, among them that of his *Zeitwende*, in which a curiously romantic character comments upon the action like the fool of medieval or the chorus of antique drama. Heinrich Lilienfein's *Tyrann* and Schalom Asch's *Bund der Schwachen* cannot compare with their earlier works. On the other hand, Stefan Zweig, the gifted Viennese, gave evidence of growth in his drama *Das Haus am Meer*. Max Bernstein, too, who never aims high but always does his best within his limitations, presented a delightful comedy, *Der gute Vogel*. Raoul Auernheimer deftly employed his wonted touch of flippancy in the Viennese comedy *Das Paar nach der Mode*. Franz Adam Beyerlein, the author of the military drama which had a sentational success some years ago, *Zapfenstreich* ("Taps"), entitles his latest play simply *Frauen* ("Women"). Otto Soyka's *Geldzauber* is a comedy founded upon an extravagant caricature of what Europeans chose to call Americanism. Ludwig Fahrenkrog, the painter-poet, has followed up his earlier dramatic venture, *Baldur,* with a new play from Norse lore, *Wölund.* Oskar Kokoschka, the young Viennese painter-poet, has published a volume of curious dramatic studies under the title *Dramen und Bilder.* Among the newcomers whose first performances were received with marked favor are Felix Montanus, the author of a striking historical tragedy *Der Phantast;* Hans Franck, who wrote the three-act drama *Herzog Heinrichs Heimkehr;* Anton Wildgans, who has to his credit the charming one-act piece *In Ewigkeit, Amen;* and Walter Lutz, whose drama *Andreas Hofer* shows pronounced originality. Among the novelists and poets who succumbed to the attraction of the footlights, Gustav Frenssen suffered a dismal failure with his *Sönke Erichsen. Gefährliche Liebe,* by Wilhelm von Scholz, *Die grosse Liebe* by Heinrich Mann, and *Das Wundermädchen von Berlin* by Hans Heinz Ewers, may also be classed among experiments that made one regret the waste of energy. That a work by Friedrich Halm, the time-honored author of *Ingomar,* should only now have been resuscitated and had its première, must be recorded as a curiosity, for his *Verbot und Befehl* proved such a successful comedy that one is rather puzzled by the question why it should have been forgotten so long.

FICTION. In fiction as in drama no one work can be singled out as the greatest achievement of the year. But Carl Hauptmann has written a novel which deserves being named first: *Ismaël Friedmann* handles the problem of marriage between Jew and Gentile with an admirable delicacy and depth of insight, endows the actors of the firmly constructed, logical plot with a haunting vitality, and is altogether a striking proof of the steady development of the author's genius. Jakob Wassermann, too, has turned out what seems to be his best story, *Der Mann von vierzig Jahren,* which suggests in the life of the strong sex an emotional climacteric identical with the so-called dangerous age of woman—a motive which seems also to have haunted Thomas Mann in his novel *Der Tod in Venedig* and Arthur Schnitzler in his *Frau Beate und ihr Sohn.* An interesting native of that same Silesia which has given us Carl and Gerhart Hauptmann is Hermann Stehr, whose *Geschichten aus dem Mandelhause* is a story of very pronounced originality, breathing the mystic spiritual atmosphere which bred Jacob Böhme. Hermann Stegemann, the Alsatian, has written a powerful story based upon the tragic problem of that province, *Die Kraft von Illzach.* Bernhard Kellermann, whose name has become identified with the strangely elusive, subtle psychology of his earlier works, has given his admirers a distinct shock by his new book, *Der Tunnel,* which is no less than a story of the building of a tunnel which is to connect Europe and America—a theme which gave him opportunity for a series of graphic pictures of supposedly American life. Gerhard Ouckama Knoop, who has occupied a position quite apart from any of the schools and tendencies of the period, and has in each of his works struck a new individual note, published shortly before his death what seemed still another new departure, a novel of old Munich: *Unter König Max.* Some of the writers more or less identified with the struggle for new literary ideals a quarter of a century ago, have published new works of varying merit: Carl Bleibtreu, the novel *Weltbrand* and the satirical story *Zwei wackere Helden;* Stanislaus Przybyszewski, who had for some years resumed his native Polish, has returned to the German in *Das Gericht;* Johannes Schlaf, by the very title *Das Recht der Jugend,* suggests a problem story; and Kurt Martens has made a concession to the patriotic mood of the year in his *Deutschland marschirt.* Richard Voss's *Kundry* is in his wonted emotional vein; Ottomar Enking's *Mathias Tedebus* shows his racy quality. Max Geissler, as usual, charms by a certain lyric element in his story *Die Herrgottswiege.* Ernst Zahn, the Swiss novelist, has given us the quaint story of a philosophical apothecary in a provincial town. Traugott Tamm's *Hingstberger* graphically presents the lure of the city. Friedrich Freksa, the author of *Sumurun,* has in his *Erwin Bernstein* written a story of theatrical Berlin. Alfons Petzold, the poet, who has risen from the ranks of simple unskilled workingmen, has followed up the success of his poems and prose sketches of a year ago by a novel which reflects his reading of life: *Erde.* Walter von Molo has finished his trilogy of Schiller novels, and Walter Bloem that of the Franco-German War. Clara Viebig, too, has written a semi-historical novel, *Das Eisen im Feuer,* giving a vivid picture of mid-century Berlin. Emmy von Egidy's *Mathias Werner* is the story of a spiritual struggle. Margarete Böhme, who has become known to American readers through *The Department-Store,* has written two more novels that may be classed with "woman novels" of the time: *Christine Immersen* and *Anna Nissens Traum.* Marie Vaërting has made a successful début with *Max Treumann's erste Liebe,* Katarina Botsky with an unusually thoughtful book of woman's life, entitled *Sommer und Herbst,* and Angela Langer with what seems an autobiographical document, *Stromaufwärts.* Enrica Handel-Mazzetti's *Brüderlein und Schwesterlein* deals with the tragedy of the young girl fresh from the convent school, who is brutally thrust into a thoroughly rotten society life by an ignorant and ambitious mother. Some interesting volumes of short stories and sketches have been published during the year. Wilhelm Hegeler's *Eros* derives its title from the initial story, which is that of a first love, and is an admirable specimen of the author's narrative art. Otto von Leitgeb's *Das Hohelied* is characterized by the refined taste with which he is wont to temper his emotional and imaginative intensity. Alexander Castell, who was credited a year ago with having created in the hero of his novel, *Bernards Versuchung,* the type of a modern "Don Juan," has collected under the title *Capriccio* stories dealing with erotic problems in the artist world and the smart set of Paris, Munich, and other metropolitan centres. A book of curiously fanciful tales of modern life is Hans Bötticher's *Ein jeder lebt's.* Ludwig Thoma's *Nachbarsleute* is a volume of sketches, in which the Bavarian writer depicts the life of peasants and provincials and pokes fun at the poses of city dwellers. Marie Eugenie delle Grazie suggests the serious undernote of her stories in the title *Das Buch des Lebens,* while Bertha von Suttner has chosen for her volume the puzzling *Ku-i-kuk.* Carl Hauptmann has filled the interval between the completion of his two last plays and his novel and the conception of a new work with the collection of a book of short stories of human lives in various social strata, which he significantly calls *Schicksale*. Peter Altenberg, the whimsical and ultra-modern Austrian, has published a new volume of his brief sketches and impressions under the title *Semmering 1912*. Gustav Meyrink's grim humor and grotesque fancy are unique in modern fiction and the three volumes under the title *Des deutschen Spiessers Wunderhorn*, in which he has collected his tales and sketches, will be among those that will have a permanent place in the library.

POETRY. The fiftieth birthday of Richard Dehmel, who is acknowledged the greatest writer of lyric verse in Germany to-day, has been celebrated by a complete edition of his works, but he has also published a new volume of poems, *Schöne wilde Welt*, which is characteristic of his philosophy and his poetic ideal. Richard Schaukal and Paul Wilhelm, two Austrian poets that came into prominence about the same time as Dehmel did, have also sent out new volumes of *Gedichte;* likewise two Swiss poets of the same generation, though not of the same tendencies, Adolf Frey and J. C. Heer. Georg Busse-Palma entitles his new volume of verse *Zwischen Himmel und Erde*. The peasant-poet Christian Wagner-Warmbrunn has sent out two volumes of verse, one of them recording his impressions of Italy. Several new Austrian voices have joined the choir: Wladimir von Hartlieb with two books of verse, *Anima Candida* and *Gott fordert dich*, that have a touch of the Whitman spirit and occasionally skillfully demonstrate the strength of the Whitman "strophe"; Anton Wildgans with a volume of sonnets, *Sonnette an Ead*, in which he sings the praise of woman; and Alfons Petzold, whose rise from the ranks of labor to literary prominence has been much commented upon, has given us a book of thoughtful lyrics, *Heimat Welt*. Other poets that have recently come into prominence are Willy Alexander Kastner with his *Weltwahn*, Franz Werfel with his emphatic *Wir sind*, Heinrich Ehrler with the tender *Briefe an ein Mädchen*, Albert Rausch, whose *Vigilien* attracted attention two years ago, with a *Buch der Trauer*. A German-American poet who passed away during the year, Udo Brachvogel, had just collected the poetical gleanings of a life-time: *Gedichte*. A posthumous volume by Georg Heym, a young poet whose untimely death is deeply lamented, is *Umbra vitæ*. Alberta von Puttkammer, who as a poet ranks close to Ricardo Huch, has, after some years of silence, published a volume entitled *Mit vollem Saitenspiel*, and Erika Rheinsch, whose verse has been attracting attention in the magazines, has collected her poems under the title *Die Laute*.

ESSAYS, CRITICISM, ETC. Of the extent of literary study in Germany nothing gives a better idea than the amazing number of critical, analytical, and appreciative essays annually turned out either in slim paper-covered booklets or in more ample and ambitious volumes. The centenary of Hebbel has been productive of a number of such studies, among them Lahnstein's treatise on Hebbel's ethics and mysticism, Bruns's study of the relation between Hebbel and Ludkig, Kutscher's of Hebbel and Grabbe, Walzel's of the dramas of Hebbel, and Dr. Ludwig Lewin's *Hebbel: ein Psychogramm*. Theodor Storm is the subject of a volume of intimate reminiscences by Gertrud Storm, and Dr. Peter Hanssen has written on Storm's relation to medicine. Dr. Ernst Jentsch has looked into the pathological traits of Otto Ludwig. Hans Dünnebier has written on the relation between Ludwig Feuerbach and Gottfried Keller. Ernest Caffi compares Nietzsche and Macchiavelli. Oskar Walzel has treated the subject of Wagner in and after his time. Alfred Markowitz has written about Ibsen's reading of life and Dr. M. Bienenstock about his views of art. Two more books have been added to the literature growing up about Gerhart Hauptmann, and Robert Ress has seen fit to write a book about the cultural significance of Arno Holz. Carl Bleibtreu, who some years ago wrote a play about Byron, has now published a book called *Das Byron Geheimniss*. Otto Harnack has written about Wilhelm von Humboldt. There are books on Lessing's educational importance, Jean Paul's personality, Friedrich Schlegel, Friedrich Matthissen, Solomon Gessner, Theodor Körner, Eduard Möricke, Gottfried Keller, Wilhelm Jensen, Arthur Fitger, Paul Heyse, Felix Dahn, J. V. von Scheffel, Robert Hamerling, Hermann Bahr, Rainer Maria Rilke, Ernst Hardt, Thomas Mann, Richard Dehmel, Ernst von Wildenbruch, Gertrud Pfander, and on foreign writers, among them Balzac and Verlaine. Most delightful books of miscellaneous essays were those by Hermann Bahr, *Essays;* Felix Salten, *Gestalten und Erscheinungen*, and one of unusual literary distinction, Felix Popenberg's *Masken*.

BIOGRAPHIES, LETTERS, MEMOIRS. A monumental biography is that by Heinrich Spiero: *Detlev von Liliencron, sein Leben und seine Werke*. Other biographical volumes are Litzmann's *Wildenbruch*, Richard Maria von Werner's *Hebbel*, and Anton X. Schurz's *Lenau*. A book of more than biographical scope is Hans Landsberg's *Henriette Herz und ihre Zeit*. Among the letters important for their human significance, as for their literary quality, are the two volumes, *Caroline: Briefe aus der Frühromantik*, and *Karoline Michaelis: Auswahl aus ihren Briefen*. The curiously interesting character of the diplomat Gentz is reflected in the collection of his letters, which, with his book on *Rahel Varnhagen und ihre Zeit*, are valuable contributions to the history of that period. There is also a volume of reminiscences of Ernst Moritz Arndt and a book of letters by Immanuel Kant. Julius Hart's *Kleistbuch* is a sympathetic memoir. August Sauer's *Grillparzer's Gespräche* is a valuable supplement to the biography of the poet; Richard Wagner figures on the title-page of a volume, *Wagner: sein Leben in Briefen*. An autobiographical volume by Peter Rosegger is entitled *Mein Weltleben*. Max Dauthendey's *Gedankengut aus meinen Wanderjahren* is an absorbingly interesting record of the spiritual evolution of the young generation in Germany.

GOETHE AND SCHILLER LITERATURE. There seems to be no limit to the books written about Goethe. Georg Simmel presents a life, Hermann Brandt studies his relation to the graphic arts, Ernst Maas to antiquity, G. Chr. Hirsch to biology. Max Wundt has written about *Wilhelm Meister* and the new reading of life. Eduard von der Hellen has edited a new collection of Goethe letters. J. Alex. Baumgartner's *Goethe, sein Leben und seine Werke*, has gone into a third, much revised edition; Harry Maync has compiled a history of Goethe bibliography, and a bibliography of original editions of works by other authors published during Goethe's lifetime seems to stretch the subject about as far as it can go. There have been books on Schiller and his idealism by Dr. Felix Kuberka, on Schiller's theory of beauty by Johann Tiedge, on his æsthetics of tragedy by Wilhelm Bolze, on Schiller in his talk by Biedermann, and Georg Wittkowski has reëdited Streicher's account of Schiller's flight from Stuttgart.

Literature, History. The term coined by Goethe, "Weltliteratur," occurs on the title-page of no less than four works recently published: Adolf Bartels has written an introduction to the history of the world's literature, Carl Busse a *Geschichte der Weltliteratur* in two volumes, Paul Wiegler a book on the same subject, and Richard Meyer a *Geschichte der Weltliteratur im 20. Jahrhundert.* Heinrich Spiero has written a *Geschichte der deutschen Frauendichtung seit 1800,* which should prove a valuable contribution to the history of woman's progress. In this connection it is interesting to note that the most important historical work of the year is considered to be Ricarda Huch's story of the Thirty Years' War: *Der grosse Krieg in Deutschland.*

Science, Nature, Art, Travel, etc. Dr. Sigmund Freud's *Totem und Tabu* establishes some startling relations between the concepts of primitive savages and the neurotic phenomena of civilized races. Walter Rathenau has written a book entitled *Zur Mechanik des Geistes.* Wilhelm Bölsche's *Stirb und Werde* is a delightful book of nature studies. A curious contribution to archæology is *Im Palast des Minos,* by "Sir Galahad." George Kutzke's *Aus Luther's Heimat* is devoted to the country of Luther and the Luther landmarks. Interesting books of travel are Emil Ludwig's *Afrika,* Hermann Hesse's *Indien,* and Arthur Achleitner's *Reise im slavischen Süden.* The theatre comes in for an astonishingly large number of books: Julius Bab's *Nebenrollen,* Monty Jacobs's *Deutsche Schauspielkunst,* Willy Rath's *Kino und Bühne,* Ferdinand Gregori's *Maskenkünste,* and a volume of dramatic criticisms by the late Otto Brahm. The renaissance of the art of dancing is treated in Hans Brandenburg's *Der moderne Tanz,* which traces the development of modern dancing back to Delsarte and Isadora Duncan. Theological controversy of recent years is revived by the posthumous publication of Carl Jatho's *Zur Freiheit seid ihr berufen* and his reformation sermon preached in 1910. Bruno Wille has compiled an anthology of philosophy entitled *Lebensweisheit.*

GERMAN NEW GUINEA. A German protectorate, including Kaiser-Wilhelmsland and the Bismarck Archipelago. The area is officially estimated at 240,000 sq. kilometers (92,664 sq. miles). The native population is estimated at 609,200; whites in 1912, 1278. Capital, Rabaul, in Neu-Pommern. The total imports in 1911 amounted to 5,299,000 marks (from Germany, 2,553,000 marks), and the exports to 4,109,000 (3,330,000). Vessels entered, 717, of 468,000 tons. The budget for 1913-14 balanced at 3,413,997 marks, including 1,419,031 marks imperial subvention. The governor in 1913 was Dr. Hahl.

Administratively attached to German New Guinea are the Caroline, Palau, Mariana, and Marshall groups of islands, estimated to cover 2572 sq. kilometers (956 sq. miles), and to contain about 53,000 inhabitants. Imports and exports (1911) of the Marshall Islands, 987,000 and 406,000 marks respectively; of the other groups, 1,720,000 and 860,000.

GERMAN SAMOA. A German protectorate in the southern Pacific, consisting of the islands of Savii (652.9 sq. miles), Upolu (335.5), Manono (3.3), and Apolima (1.8): 993.5 sq. miles in all. Population, 37,480 natives; whites, 500. The imports in 1911 were valued at 4,066,000 marks (855,000 marks from Germany), and the exports at 4,390,000 (2,125,000). Vessels entered, 132, of 141,000 tons. The budget for 1913-14 balanced at 1,132,804 marks. The governor in 1913 was Dr. Schultz, residing at Apia, in Upolu.

GERMAN SOUTHWEST AFRICA. A German protectorate lying between Angola and the Cape Province. The area is officially estimated at 835,100 sq. kilometers (322,432 sq. miles). Estimated native population, 87,770; whites in 1912, 14,816. Stock-raising is the leading occupation, the number of livestock (1910) being as follows: 121,139 cattle, 343,989 sheep, and 327,095 goats. In the neighborhood of Lüderitzbucht diamond mines are worked, the output for the year ending March 31, 1911, totaling 814,322 carats. The imports for 1911 amounted to 45,302,000 marks (37,259,000 from Germany), and the exports to 28,573,000 (24,360,000 to Germany). The leading exports were diamonds, valued at 23,034,000 marks, copper 3,754,000, lead 346,000, skins 324,000, ostrich plumes 80,000, wool 74,000. Vessels entered (1911), 401, of 1,295,000 tons. There were 2104 kilometers of railway in operation at the close of 1912. There was active discussion during the year of projects to increase the railway system. A line into Amboland received the sanction of the Reichstag and an extension of the Swakopmund-Windhuk line to Gobabis, about 62 miles from the Anglo-German frontier, was proposed, traversing, as it would, a region of remarkable fertility. The third line proposed was an extension of the Lüderitzbucht railway to Keetmanshoop and to Hansuur so as to unite this system with the railway system of the South African Union. The budget for 1913-14 balanced at 54,141,672 marks, including 14,626,840 marks imperial subvention. The governor in 1913 was Dr. Seitz, residing at Windhuk.

In accordance with an imperial decree of June 26, 1913, the Landesrat met in November for the first time in its existence as a real legislative body, its functions having hitherto been confined to advice and consultation. In financial matters the Landesrat is still without authority. Further reform of the government is demanded by the local press, especially as concerns the membership of the Landesrat. which at present is half elective and half appointive.

GERMANY. The German Empire, extending from France to Russia, consists of twenty-five federated states and an imperial territory (Reichsland). The capital is Berlin.

Area and Population. The area in square kilometers and equivalent square miles, and the population present according to the census of December 1, 1910, are shown by states in the following table (*k* kingdom, *g* grand duchy, *d* duchy, *p* principality, *fc* free city, *r Reichsland*); under Prussia are shown the constituent provinces and territory of Hohenzollern, and under Bavaria are shown Bavaria proper (that is, the eastern part) and the detached Palatinate (west of the Rhine):

	Sq. km.	Sq. m.	Pop. '10
Prussia (k)	348,779.9	134,663.9	40,165,219
East Prussia	37,002.0	14,286.5	2,064,175
West Prussia	25,554.7	9,866.7	1,703,474
Berlin (city)	63.4	24.5	2,071,257
Brandenburg	39,842.3	15,383.1	4,092,616
Pomerania	30,131.4	11,633.7	1,716,921
Posen	28,991.5	11,193.6	2,099,831
Silesia	40,335.1	15,573.4	5,225,962
Saxony	25,267.3	9,755.7	3,089,275
Schleswig-Holstein	19,018.8	7,343.2	1,621,004
Hanover	38,509.4	14,868.5	2,942,436
Westphalia	20,219.6	7,806.8	4,125,096
Hesse-Nassau	15,702.0	6,062.5	2,221,021
Rhine Prov.	27,000.2	10,424.8	7,121,140
Hohenzollern	1,142.2	441.0	71,011
Bavaria (k)	75,870.2	29,293.5	6,887,291
Bavaria proper	69,942.2	27,004.7	5,950,206
Palatinate	5,928.0	2,288.8	937,085
Saxony (k)	14,992.9	5,788.8	4,806,661
Württemberg (k)	19,507.3	7,531.8	2,437,574
Baden (g)	15,070.3	5,818.6	2,142,833
Hesse (g)	7,688.4	2,969.5	1,282,051
Mecklenburg-Schwerin (g)	13,126.9	5,068.3	639,958
Saxe-Weimar (g)	3,610.0	1,393.8	417,149
Mecklenburg-Strelitz (g)	2,929.5	1,131.1	106,442
Oldenburg (g)	6,429.1	2,482.3	483,042
Brunswick (d)	3,672.0	1,417.8	494,339
Saxe-Meiningen (d)	2,468.3	952.8	278,762
Saxe-Altenburg (d)	1,323.5	511.0	216,128
Saxe-Coburg-Gotha (d)	1,976.8	763.2	257,177
Anhalt (d)	2,299.4	887.8	331,128
Schwarzburg-Sondershausen (p)	862.2	332.9	89,917
Schwarzburg-Rudolstadt (p)	941.0	363.0	100,702
Waldeck (p)	1,121.0	432.8	61,707
Reuss Elder Line (p)	316.3	122.1	72,769
Reuss Younger Line (p)	826.7	319.2	152,752
Schaumburg-Lippe (p)	340.3	131.4	46,652
Lippe (p)	1,215.2	469.4	150,937
Lübeck (fc)	297.7	114.9	116,599
Bremen (fc)	256.4	99.0	299,526
Hamburg (fc)	414.5	160.0	1,014,664
Alsace-Lorraine (r)	14,521.8	5,606.9	1,874,014
Total	540,857.6	208,825.2	64,925,993

Total, 1816	24,833,000	1880	45,234,061
Total, 1830	29,520,000	1890	49,428,470
Total, 1864	39,392,000	1900	56,367,178
Total, 1871	41,058,792	1905	60,641,489

The estimated population of the empire and of the Zollgebiet, on June 30, 1912, was 66,096,000 and 66,341,000 respectively; on June 30, 1913, 66,835,000 and 67,082,000. Of the 1910 population, 32,040,166 were males, and 32,885,827 females. The foreign population at the 1910 census was 1,259,873 (716,994 males, 542,879 females), of whom 634,983 were Austrians, 144,175 Dutch, 137,697 Russians, 104,204 Italians, 68,257 Swiss, 32,079 Hungarians, 26,233 Danes, 19,140 French, 18,319 British, and 17,572 Americans.

The population in 1910, 64,925,993, was divided among 75,939 communes (*Gemeinde*). Communes with less than 100 inhabitants numbered 15,013, with a total population of 822,406; communes with 100 to 499 inhabitants, 40,516, with a population of 10,250,420; communes with 500 to 999 inhabitants, 11,686, with a population of 8,090,857; communes with 1000 to 1999 inhabitants, 4984, with a population of 6,790,904; communes with 2000 to 4999 inhabitants, 2441, with a population of 7,297,770; communes with 5000 to 19,999 inhabitants, 1028, with a population of 9,172,333; communes with 20,000 and less than 100,000 inhabitants, 223, with a population of 8,677,955; communes with 100,000 or more inhabitants, 48, with a population of 13,823,348. Communed population of the larger cities December 1, 1910: Berlin, 2,071,257 (Greater Berlin, 3,710,000); Hamburg, 932,116; Leipzig, 626,267; Munich, 608,375; Dresden, 551,697; Cologne, 516,527; Breslau, 514,765; Frankfort-on-the-Main, 414,576; Düsseldorf, 358,728; Nuremberg, 333,142; Charlottenburg, 305,978; Hanover, 302,375; Essen, 294,653; Chemnitz, 287,807; Stuttgart, 286,218; Magdeburg, 279,629; Bremen, 247,437; Königsberg, 245,994; Stettin, 237,419; Neukölln (formerly Rixdorf), 237,289; Duisburg, 229,483; Dortmund, 214,226; Kiel, 211,627; Mannheim, 206,049; Halle, 180,843; Strassburg, 178.891; Berlin-Schöneberg, 172,823; Altona, 172,628; Danzig, 170,337; Elberfeld, 170,195; Gelsenkirchen, 169,513; Barmen, 169,214; Posen, 156,691; Aachen (Aix-la-Chapelle), 156,143; Cassel, 153,196; Brunswick, 143,552; Bochum, 136,931; Karlsruhe, 134,313; Lichtenberg, 133,141; Krefeld, 129,406.

In 1910, persons unmarried numbered 38,107,944 (19,516,340 males and 18,591,604 females), married 23,229,713, widowed 3,450,548, and divorced or separated 137,788. Protestants numbered 39,991,421 (61.59 per cent. of the total population); Roman Catholics, 23,821,453 (36.69); other Christians, 283.946 (0.44); Jews, 615,021 (0.95); others, 214,152.

In 1910, marriages per thousand inhabitants were 7.7 and in 1911 7.8; births, 30 7 and 29.5; deaths, 17.1 and 18.2; living births, 29.8 and 28.6. Of the births, 2.9 per cent. were stillbirths in 1910, and 3.0 per cent. in 1911; illegitimate, 9.1 per cent. and 9.2 per cent. Movement of the population from 1908 to 1911:

	1908	1909	1910	1911
Marriages	500,620	494,127	496,396	512,819
Births *	2,076,660	2,038,357	1,982,836	1,927,039
Stillbirths	61,607	60,079	58,057	56,295
Deaths *	1,197,098	1,154,296	1,103,723	1,187,094

* Including stillbirths.

In recent years the birth rate has shown a marked decline. In 1876 it was 42.6; in 1886, 38.5; in 1896, 37.5; in 1906, 34.1; in 1909, 32.0; and in 1911, 29.5.

In 1910, German emigrants numbered 25,531; in 1911, 22,690; in 1912, 18,545, of whom 13,706 were bound for the United States, 891 for Canada, 225 for Brazil, 3307 for other American countries, and 322 for Australia.

Education. Probably no country in the world takes higher rank than Germany in general educational development. Illiteracy is almost neglible. In 1901, there were 59,187 public elementary schools, with 124,027 male teachers, 22,513 female teachers, and 8,924,779 pupils. In 1911 the public elementary schools numbered 61,557, with 148,217 male teachers, 39,268 female teachers, and 10,309,949 pupils (5,157,446 boys and 5,152,503 girls); in addition, there were 480 private elementary schools, with 26,151 pupils (11,894 boys and 14,257 girls). Ranking next above the elementary schools are the middle schools, statistics of which for 1911 are: Public middle schools, 914; private middle schools, 1135; male teachers, 5147 and 1131; female teachers, 2384 and 3403; pupils, 273,394 and 80,660 (boys, 135,799 and 21,873; girls, 137,595 and 58,787). In 1911 there were 524 gymnasia, with 160,237 students; 223 realgymnasia, with 70,357; 167 oberrealschulen, with 75,832; 81 progymnasia, with 9509; 63 prorealgymnasia, with 7252; 411 realschulen, with 89,968; 218 other secondary schools for boys, with 14,489; 39 gymnasia for girls, with 22,137 students; 789 higher schools for girls, with 212,324. There are 11 degree-conferring technical high schools, with 16,187 students in the winter semester of 1912-13. In the 22 universities (including the medical Kaiser-Wilhelm Academy at Berlin and the Posen Academy) there were in winter semester of 1912-13 69,277 students (including 9965 non-matriculated). In addition to the institutions mentioned, there are many schools for technical and special education.

AGRICULTURE. The area of the empire is 54,085,760 hectares, of which in 1907 farm land comprised 43,106,486 ha.; of the farm land, 31,834,874 hectares (73.9 per cent.) were under cultivation, 7,679,754 ha. (17.8) were profitable forest land, and 3,591,858 ha. (8.3) were poor pasture, waste land, yards, etc. The land under cultivation consisted of arable land, 24,432,354 ha. (56.7 per cent. of total farm land); meadows and sown pastures, 6,805,436 ha. (15.8); gardens, 481,716 ha. (1.1); and vineyards, 115,368 ha. (0.3). As compared with 1895, the year 1907 showed an increase in waste and forest land and a slight decrease in cultivated land; and in the later year, 27.95 per cent. of the population were supported by agriculture, against 34.9 in the former.

For some of the principal crops, the area harvested, in thousands of hectares, and the yield in metric quintals, in 1912 and 1913, with the yield per hectare in 1912, are shown below:

	1000 ha.		Quintals		Qs.
	1912	1913	1912	1913	ha.
Wheat	1,926	1,974	43,606,240	46,559,560	22.6
Rye	6,268	6,414	115,982,890	122,223,940	18.5
Barley	1,590	1,654	34,819,740	36,732,540	21.9
Oats	4,387	4,438	85,201,830	97,139,650	19.4

Some of the other important crops in 1911 and 1912, with yield per hectare in 1912, were as follows:

	1000 ha.		Quintals		Qs.
	1911	1912	1911	1912	ha.
Potatoes....	3,321	3,341	343,742,250	502,094,660	150.3
Spelt........	282	283	4,027,290	4,070,320	14.4
Hay..........	5,932	5,921	199,753,240	276,818,600	46.8
Vines *......	110	109	2,922,886	2,019,392	18.6

* Production in hectoliters of most.

In 1911, 26,658 ha. were under hops, which yielded 106,277 qs. (27,460 ha. and 204,110 qs. in 1910); in 1911, 17,017 ha. were sown to tobacco, yield, 291,809 qs. The sugar beet is a valuable crop. For Prussia, the harvest area in 1912 and 1913 was 426,327 ha. and 443 240 ha.; yield, 129,632,150 ha. and 136,254,830 ha.; yield per ha., 304.1 ha. and 307.4.

The results of the livestock census of December 2, 1912, in comparison with that of December 2, 1907, were as follows: Horses, 4,523,059 in 1912 and 4,345,047 in 1907; mules and hinnies, 1883 and 942; asses, 11,264 and 10,349; cattle, 20,182,021 and 20,630,544 (cows and heifers, 10,944,238 and 10,966,998); sheep, 5,803,445 and 7,703,710; swine, 21,923,707 and 22,146,532; goats, 3,410,396 and 3,533,970; poultry, 82,702,030 and 77,103,045; beehives, 2,630,837 and 2,594,690. Slaughter in 1912: Oxen, 523,149; bulls, 421,772; cows, 1,727,621; calves over three months, 961,452; calves up to three months, 4,360,326; swine, 18,196,343; sheep, 2,263,423; goats, 467,858; horses, 178,961; dogs, 8132.

MINERALS AND METALS. Included in the figures of Germany's mineral and metal productions are those of the grand duchy of Luxemburg. The principal mining products, in thousands of metric tons, values in thousands of marks, are shown in the following table:

	1000 metric tons		1000 marks	
	1910	1911	1910	1911
Coal	152,827.8	160,747.1	1,526,604	1,572,607
Lignite	69,547.3	73,774.1	178,618	183,452
Rock salt.....	1,424.1	1,436.5	6,440	6,587
Pot. salts.....	8,311.7	9,606.9	91,357	107,460
Iron ore......	28,709.7	29,879.4	106,809	114,532
Zinc ore......	718.3	700.0	45,185	49,324
Lead ore.....	148.5	140.2	14,064	14,131
Copper ore....	926.0	868.6	23,406	21,531

The total value of all mining products in 1911 was 2,085,566,000 marks; in 1910, 2,008,708,000; in 1902, 1,235,759,000; in 1892, 711,695,000. The output of salts from solution in 1911 was 1,892,000 metric tons (1,769,500 in 1910), valued at 130,103,000 marks (115,497,000 in 1910); of which common salt, 651,000 tons, valued at 17,838,000 marks, and potassium chloride, 838,400 tons, valued at 83,410,000 marks.

Important reduction products, in thousands of metric tons, valued in thousands of marks:

	1000 metric tons		1000 marks	
	1910	1911	1910	1911
Pig iron........	14,793.6	15,574.0	802,851	867,890
Zinc	221.4	243.8	99,399	118,364
Lead	159.9	161.5	42,042	44,192
Copper	34.9	37.5	42,389	44,017
Silver	*420.0	*439.6	30,652	32,133
Gold	†4,625.0	†4,967.0	12,919	13,874
Sulphuric acid.	1,616.3	1,725.0	44,344	47,246

* Thousands of kilos. † Kilos.

COMMERCE. Total commerce, excepting goods merely in transit, is shown below in millions of marks:

	1907	1910	1911	1912
Imports:				
Merchandise....	9,570.5	9,535.1	10,380.0	11,572.1
Coin and bullion.	249.8	555.0	297.3	327.4
Total..........	9,820.3	10,090.1	10,677.3	11,899.5
Exports:				
Merchandise....	7,442.4	8,079.7	8,773.9	9,684.2
Coin and bullion.	259.0	352.9	118.3	142.9
Total..........	7,701.4	8,432.6	8,892.2	9,827.1

Imports for consumption and exports of domestic produce have been valued as follows, in millions of marks:

	1907	1910	1911	1912
Imports:				
Merchandise....	8,748.7	8,934.1	9,705.7	10,691.4
Coin, bullion....	251.9	375.9	301.3	325.7
Total..........	9,000.6	9,310.0	10,007.0	11,017.1
Exports:				
Merchandise....	6,846.2	7,474.7	8,106.1	8,956.8
Coin, bullion....	248.7	169.5	118.3	142.7
Total..........	7,094.9	7,644.2	8,224.4	9,099.5

Imports and exports of merchandise by great classes have been valued as follows, in millions of marks (special trade):

	Imports		Exports	
	1911	1912	1911	1912
Raw materials..	5,270.8	5,882.6	2,029.7	2,370.6
Manufactures...	1,442.2	1,608.2	5,278.3	5,787.5

	Imports		Exports	
	1911	1912	1911	1912
Foodstuffs	2,761.1	2,944.6	785.6	789.8
Live animals...	231.6	256.0	12.5	8.9
Total	9,705.7	10,691.4	8,106.1	8,956.8

Principal imports of merchandise for consumption in 1912, in millions of marks (figures in parentheses for 1911: Cereals, 1130.5 (1181.3); cotton, 623.6 (643.8); hides and skins, 575.5 (488.0); wool, 527.0 (485.0); chemicals and drugs, 395.4 (325.8); timber, lumber, etc., 355.5 (305,5); copper, 320.0 (233.5); coal, 275.7 (265.6); live animals, 252.9 (228.1); coffee, 252.7 (251.7); silk, 222.9 (207.0); iron, 213.3 (190.0); fruits, 220.6 (212.6); copra, cocoanuts, etc., 195.3 (164.3); eggs, 187.5 (171.4); rubber and gutta-percha, 184.2 (193.8); leaf tobacco, 135.6 (116.5); fish, 126.5 (113.0); butter, 126.3 (127.6); flax and hemp, 120.4 (99.2); oil cake, 116.5 (104.3); animal fats, 111.2 (87.7); woolen yarn, 107.6 (113.8); tin, 107.2 (92.1); linseed, 104.8 (94.4); cotton yarn, 104.0 (98.9); rice, 102.6 (88.2); iron manufactures, 97.9 (89.3); meats, 84.8 in 1912; furs, etc., 78.9 (67.1); machinery, 77.1 (71.0); silk goods, 76.5 in 1912; jute, 74.7 (62.2); zinc, 71.9 (60.4); wines, 65.9 (68.5); lead, 64.0 (55.6); cacao, 63.6 (55.5); petroleum, 62.9 (50.1); cotton goods, 58.1 (51.5).

Principal exports of domestic produce in 1912, in millions of marks (figures in parentheses for 1911): Iron manufactures, 1185.8 (1014.2); machinery, 630.3 (544.4); coal, 611.9 (507.8); chemicals and drugs, 546.4 (505.0); cotton goods, 421.6 (391.5); cereals, 341.6 (291.8); dyes, colors, etc., 278.2 (250.6); woolen goods, 253.4 (262.7); electrical apparatus, 239.7 (208.0); paper, 232.2 (227.7); leather, 230.1 (205.6); silk goods, 205.2 (201.8); copper manufactures, 184.7 201.8); hides and skins, 182.3 (164.4); furs, etc., 182.2 (137.2); ships, 155.9 (160.3); sugar, 132.2 (212.9); rubber manufactures, 120.5 in 1912; glass and glassware, 119.5 (108.4); apparel, 118.3 (112.5); wool, 117.3 (116.6); pottery, 102.0 (95.7); leather manufactures, 98.1 (81.7); books, maps, etc., 96.1 (98.4); toys, 92.3 (90.6); woolen yarn, 84.2 (88.1); cotton, 80.7 (78.1); musical instruments, 78.0 (72.3); wooden manufactures, 68.5 (63.2); gold and silver manufactures, 66.9 (52.9); cotton yarn, 64.1 (59.2).

Imports for consumption and exports of domestic produce by countries, in millions of marks:

	Imports		Exports	
	1911	1912	1911	1912
Russia	1,634.8	1,527.9	625.4	679.8
United States...	1,343.4	1,586.0	639.8	697.6
Unit'd Kingdom	808.8	842.6	1,139.7	1,161.1
Austria-Hungary	739.1	829.6	917.8	1,035.3
France	524.4	552.2	598.6	689.4
British India...	440.8	533.3	99.5	107.5
Argentina	369.9	444.9	255.9	239.4
Belgium	340.1	386.6	412.7	493.3
Netherlands ...	297.7	345.0	532.1	608.5
Brazil	320.0	313.2	152.0	192.8
Italy	284.8	304.6	348.0	401.2
Australia	248.2	276.7	79.7	87.6
Du. E. Indies..	184.4	214.9	61.1	74.5
Sweden	183.0	214.0	191.6	197.4
Chile	158,8	209.7	85.4	112.0
Switzerland ...	179.6	205.7	482.4	520.5
Denmark	180.2	202.2	218.0	254.2
Spain	164.1	189.8	88.4	113.0
Rumania	107.7	138.2	91.4	131.7
Br. W. Africa.	106.7	118.6	13.7	15.2
China	103.3	115.3	71.8	81.7
Egypt	99.5	111.7	42.3	38.0
Turkey	70.1	77.6	112.8	112.8
Br. S. Africa...	55.9	67.2	47.5	44.5
Norway	54.1	63.8	124.3	144.7
Canada	24.0	58.1	42.9	54.3
Uruguay	35.4	50.3	32.9	38.5
Japan	37.6	43.1	112.6	110.6
Finland	34.6	36.9	75.4	83.4
Bolivia	36.6	38.3	9.5	12.3
Mexico	31.0	35.5	45.1	45.3
Algeria	25.9	31.5	4.2	5.4
Total, including other...	9,705.7	10,691.4	8,106.1	8,956.8
Europe	5,690.0	6,008.0	6,069.6	6,743.6
America	2,462.2	2,885.4	1,361.9	1,496.4
Asia	856.0	1,006.3	383.5	420.2
Africa	416.7	478.6	188.0	185.3
Australia and Oceania.....	273.1	304.2	91.7	99.9
Total	9,705.7	10,691.4	8,106.1	8,956.8

Imports from the German protectorates in 1911 and 1912, in millions of marks: 43.1 and 52.9; exports thereto, 50.3 and 57.3.

SHIPPING. The total entries and clearances, with registered tonnage, are shown below for 1911 (also the number of steam vessels included in the total):

	Entered		Cleared	
	Vessels	1000 t.	Vessels	1000 t.
German............	86,850	18,655	87,421	18,690
Foreign............	25,841	12,882	26,158	12,956
Total.............	112,691	31,537	113,579	31,646
	Steam		Steam	
German............	56,533	16,060	56,581	16,108
Foreign............	16,025	11,989	16,187	12,050
Total.............	72,558	28,050	72,768	28,159

On January 1, 1913, the merchant marine included 4850 sea-going vessels, of 3.153,724 tons, of which 2098 vessels, of 2,655,496 tons, were steamers. The registered tonnage of Hamburg was 1,797,508; Bremen, 902,221; Prussia, 298,584; Lübeck, 52,786; Aldenburg, 60,402; Mecklenburg, 42,223; total, 3,153,724 (as compared with 3,023,725 in 1912 and 2,825,449 in 1909).

COMMUNICATIONS. The railways in operation on March 31, 1913, were as follows (normal gauge, narrow gauge, and totals in kilometers):

	Norm. g.	Nar. g.	Total
Owned or operated by:			
Prussia	38,790	240	39.030
Bavaria	8,034	115	8.149
Saxony	2,814	508	3.322
Württemberg	1,997	101	2,098
Baden	1,754	28	1,782
Mecklenburg	1,094	.....	1,094
Oldenburg	652	.....	652
Prussia (Royal Military Ry.)	71	.....	71
Imperial government in Alsace-Lorraine	2,022	78	2,100
Government railways......	57,228	1,070	58,298
Private railways.............	3,577	1,143	4,720
Total in 1913................	60,805	2,213	63.018
Total in 1912................	59,992	2,215	62.207
Total in 1911................	59,259	2,178	61,437

The foregoing totals for 1913, in miles:

Government railways........	35,560	665	36.225
Private railways.............	2,223	710	2.933
Total in 1913................	37,783	1,375	39.158
Total in 1912................	37,278	1,376	38,654

During 1913 there was more than the usual activity in railway construction in Germany. At East Frankfort O. M. a new station was opened in March. Along the Belgian frontier the Stavelote Malmedy Railway was under construction with a tunnel 547 yards in length, while in Bavaria the Mittenwald Hydro-Electric

Railway, which passes over a 3500-foot summit, and was 70 miles in length, was in progress. The Berlin city line extensions, which at the end of the year comprised 23 miles, were still in progress. Electrification was being undertaken on a number of lines and on the Dessau-Ritterfeld line was almost completed between Leipzig and Magdeburg.

Telegraphs are owned by the imperial government except in Bavaria and Württemberg; these kingdoms operate, under certain limitations, their own telegraphs and posts. In addition to the State telegraphs, there are railway and some private lines. In 1912 there were in the empire, exclusive of Bavaria and Württemberg, 37,369 telegraph offices (32.238 State, 5131 railway, etc.); in Bavaria, 8538 (7147 and 1391); in Württemberg, 2260 (2239 and 21); total, 48,167 (41,624 and 6543). State telegraph lines in 1912: Imperial, 191,679 kilometers (with 612,889 km. of wire); in Bavaria, 29,186 (81,433); in Württemberg, 11,225 (19,217); total, 232,090 (723,539). There were reported 15 wireless stations and 213 on board ship. Post offices in 1912: Imperial, 34,690; in Bavaria, 5308; in Württemberg, 1194; total, 41,192 (in 1911, 40,987).

Finance. The monetary unit is the mark, par value, 23.821 cents. The imperial budget for the year ended March 31, 1913, balanced at 2,886,135,087 marks (including extraordinary revenue and expenditure balancing at 134,473,100 marks). The budget for the fiscal year 1914, pursuant to laws of May 4 and July 3, 1913, balanced at 3,696,033,215 marks (including revenue and expenditure balancing at 118,634,500 marks). Of the extraordinary estimated revenue for the fiscal year 1914, loans accounted for 115,458,148 marks. For that year the larger estimated receipts were: Customs, excise, stamps, etc., 2,086,569,894 marks (customs, 721,470,000; military contributions, 416,787,000; imperial stamps, 226,722,000; spirits excise, 195,455,000; sugar, 157,600,000; beer, 124,780,000; etc.); matricular contributions of the several States (exclusive of their contributions from spirits excise), 51,940,794; posts and telegraphs, 842,369,000; railways, 153,779,000. Larger estimated disbursements for the fiscal year 1914, including ordinary (permanent and transitory) and extraordinary: Military administration, 1,368,685,243 marks (against 827,795,405 marks estimated for the fiscal year 1913); posts and telegraphs, 734,533,884 (714,009,235); administration of the navy, 480,253,894 (470,433,623); general direction of finance, 290,168,213 (97,707,127); debts of the empire, 243,557,366 (240,032,521); interior, 159,148,032 (123,017,171); pensions, 142,542,052 (143,411,248); administration of the railways, 139,671,611 (124,343,651); imperial treasury, 43,975,875 (44,026,356).

In October, 1912, the interest-bearing debt of the empire was 4,802,242 marks, having decreased 21,414,700 marks since October, 1911. The non-interest-bearing debt was: Treasury bonds, 160,000,000 marks (having decreased 140,000,000 marks); paper money, 120,000,000. Total debt, 50,082,242,000 marks (the decrease from 1911 being 161,414,700). A war fund of 120,000,000 marks in gold is kept at Spandau.

Army. On October 1 the scheme of organization came into effect whereby the German army was to consist of 651 battalions of infantry, 555 squadrons of cavalry, 633 batteries of field artillery, 226 batteries of heavy and fortress artillery, 44 battalions of pioneers, 21 battalions of railway troops, and 26 battalions of train, all of these units being maintained at a high peace effective which was to range from 835,000 to 870,000 men, according to the season of the year.

The developments of the year provide for the utilization of reservists in the ranks of the existing forces when they are called upon to take the field, and the provision of additional officers to organize the reserve units to be maintained on a cadre basis.

The new law carried an effective budgetary strength for the German army, as follows: 36,000 officers, 110,000 non-commissioned officers and 661,000 soldiers, in addition to 6000 civilian employes, and 4000 employes of low rank, and 18,000 volunteers for one year—in other words, a total of 835,000 men, which will be increased to 870,000 men at the beginning of spring by the incorporation of extra men to increase the effective strength.

The law dealt with the organization of the various units and the methods by which they were to be increased. The organization of the German army was in 25 corps, which were grouped in eight inspection commands, instead of seven, as previously, the new inspection including the three army groups of the east of the empire, the II., V., and VI. This division, following the institution of the seventh inspection command, reduces the number of corps under the command of a single general to three, and will increase his responsibility for the discipline and control of such armies, rather than merely handling a number of grand units in municipalities, as hitherto. The number and distribution of the 25 corps and their division into inspection districts was as follows:

First inspection, I. (Königsberg), XVII. (Danzig), XX. (Allenstein); 2nd inspection, guard (Berlin), XII. and XIX. (Saxon contingent); 3rd inspection, VII. (Münster), IX. (Altona), X. (Hanover); 4th inspection, III. (Brandenburg), and 3 Bavarian corps; 5th inspection, VIII. (Coblenz), XIV. (Baden contingent), XV. (Strassburg); 6th inspection, IV. (Magdeburg), XI. (Cassel), XIII. (Württemberg contingent); 7th inspection, XVI. (Metz), XVIII. (Frankfort), XXI. (Saarbrücken); 8th inspection, II. (Stettin), V. (Posen), VI. (Breslau).

Military service in the German army is compulsory for every citizen, with certain exceptions, from the 10th to the 45th year, the theoretical arrangement being seven years in the regular army, either with the colors or in the reserve, five years in the first levy of the Landwehr, ten years in the second levy of the Landwehr, and finally with the Landwehr home defense army until the completion of the citizen's 55th year. In practice the recruit spends two years with the colors in all branches of the service excepting the cavalry and horse artillery, where it is three years, and then remains in the reserve for the remainder of the seven years.

It is estimated that more than one-half of the able-bodied men in Germany have altogether escaped military service, but this proportion was to be affected by the new law, despite the larger proportion required for training. The total war strength of Germany in 1913 was estimated at approximately 4,350,000 men, which included the standing army with its reserve, the Landwehr, and the trained men of the Landsturm, with a highly trained and vigorous first line amounting, however, to not more than 1,800,000 men ready for immediate service. See also Military Progress.

Navy. Number and displacement of warships of 1500 or more tons, and of torpedo craft of 50 or more tons, built and building, December 1, 1913: Dreadnoughts (battleships having a main battery of all big guns, that is, 11 or more inches in calibre): built, 13, of 285,670 tons; building, 6, of 162,300 tons. Pre-dreadnoughts (battleships of about 10,000 or more tons, whose main batteries are of more than one calibre): built, 20, of 242,800 tons; building, none. Coast-defense vessels (including smaller battleships and monitors): built, 2, of 8168 tons; building, none. Battle cruisers (armored cruisers having guns of largest calibre in main battery and capable of taking their place in line of battle with the battleships): built, 4, of 88,974 tons; building, 3, of 84,000 tons. Armored cruisers: built, 9, of 94,245 tons; building, none. Cruisers (unarmored warships of 1500 or more tons): built, 40, of 145,847 tons; building, 4, of 21,886 tons. Torpedo-boat destroyers: built, 130, of 67,094 tons; building, 12, of 7200 tons. Torpedo boats, none built or building. Submarines: built, 24, of 10,540 tons; building, 12, of 9484 tons. Total tonnage: built, 943,338; building, 284,870. Excluded from the foregoing: Ships over twenty years old from date of launch unless reconstructed and rearmed within five years; torpedo craft over fifteen years old; transports, colliers, repair ships, torpedo depot ships, and other auxiliaries; vessels not actually begun or ordered although authorized. Germany is second among the nations (the United Kingdom being first) in amount of warship tonnage completed and also in the aggregate tonnage built and building.

Officers and men in 1913, 73,396, including 2 admirals of the fleet, 5 admirals, 11 vice-admirals, 22 rear-admirals, 356 captains and commanders, and 1881 other line officers.

Of the 13 dreadnoughts built, two were completed in 1909, two in 1910, three in 1911, three in 1912, and three in 1913. Those completed in 1913 are the *Kaiserin*, *König Albert*, and *Prinzregent Luitpold*. These ships, like the *Kaiser*, finished in 1912, carry a main battery of ten 12-inch guns, all of which may be fired on either broadside. Of the six dreadnoughts building, three were launched in 1913, the *König* on March 1 at the imperial yard, Wilhelmshaven, the *Grosser Kurfurst* on May 5 at Hamburg, and the *Markgraf* on June 4 at Bremen. Of the battle cruisers built, one, the *Seydlitz*, was completed for service in October, 1913; of the three building, the *Derfflinger* was launched at Hamburg on July 1, 1913. See also Battleships and Naval Progress.

Government. The imperial legislature consists of the Bundesrat, or federal council (61 members chosen by the government of the several states) and the Reichstag (397 members elected for five years by direct vote). The executive authority is vested in the king of Prussia under the title of German emperor. In 1912, the emperor was William II.; he was born January 27, 1859, and succeeded to the throne June 15, 1888. Heir-apparent, Prince Frederick William, born May 6, 1882; the frequent and unintelligent manifestations of his jingo tendencies have become a cause of alarm in Germany. The imperial ministers, or secretaries of state, do not form a ministry proper, but act independently of each other under the general supervision of the imperial chancellor. The chancellor, who is president of the Bundesrat, is appointed by the emperor without reference to the political majority in the Reichstag, and to the emperor he is directly responsible. Imperial chancellor (and Prussian prime minister) in 1913, Theobald von Bethmann-Hollweg (from July 14, 1909). The imperial secretaries of state in 1913 were: Secretary of state for foreign affairs, Gottlieb von Jagow (succeeding Alfred von Kiderlin-Waechter, who died December 30, 1912); interior, Klemens Delbrück (from July 14, 1909); marine, Grand Admiral Alfred von Tirpitz (from June 15, 1897); justice, Hermann Lisco (from November 1, 1909); treasury, Hermann Kühn (from March 16, 1912); posts and telegraphs, Reinhold Kraetke (from 1901); colonies, Wilhelm Solf (from December 20, 1911).

History

The Centre and the Government. By refusing to suspend the Jesuit law of 1872, the Bundesrat, in November, 1912, had seriously offended the Clericals, and von Bethmann-Hollweg appeared to have lost the support of the Centre party in the Reichstag. When that body met on January 8, 1913, to discuss the budget, the Centre lost no opportunity to censure the government's policy; first it was found insufficient in the matter of social legislation; then it was assailed for brutality toward the Poles. On January 30 the Centre combined with Social Democrats, Poles, Danes, and Alsatians to declare lack of confidence in the ministry, and subsequently the same combination struck out the appropriations in the imperial budget for military and postal administration in the East Mark. The chancellor, however, denied the right of the Reichstag to interfere with what seemed to him to be a purely Prussian question, and the Prussian government continued its policy of expropriating the Poles and encouraging German colonization in Posen. Some 200 millions of marks were appropriated for that purpose in the Prussian budget of the present year.

The Centre might be defied by the Prussian government in the Polish question, but it was none the less resolute in demanding the abrogation of the obnoxious restrictions on the Jesuits. On February 19 a Centrist bill for the suspension of the Jesuit law was defended by Dr. Spahn on the ground that the Jesuits were neither political agitators, nor intolerant toward Protestants, nor immoral, and should not be subjected to exceptional laws. The bill passed all three readings on the votes of Centrists, Poles, Alsatians, Danes, and Social Democrats, and was referred to the Bundesrat. The Centre then consented to coöperate with the government, and on April 28 the budget debate was brought to a conclusion.

The Army Increase. When the Reichstag resumed its labors on May 27 after almost a month's vacation the centre of interest had shifted from clerical politics to the government's proposals for increasing the army. An army bill, together with five bills to provide new funds for military expenditure, had been passed by the Bundesrat on March 28 and introduced in the Reichstag on April 7. Considered from the point of view of the increased burdens placed upon the German people, or from the point of view of the pacifist, this new addition to the burden of taxation and the new impetus to militarism might indeed be inexcusable, but excuses could hardly be lacking when Austria-Hungary was threatening to involve the continent in war, when France was cherishing the memory of Alsace-Lorraine, when Great Britain was boasting naval supremacy, when the Triple Entente was winning the friendship of Spain. To be sure, in his public statement, the chancellor commented on the effective work of Sir Edward Grey in preserving peace, affirmed that relations with Russia were "friendly" and with France "good," and rejoiced at the solidarity of the Triple Alliance; in secret conferences, however, the international situation assumed so grave a complexion that no real patriot could doubt that Germany might at any moment be called upon to fight for existence. And since a majority of the deputies in the Reichstag were unwilling to be other than patriots, the army bill encountered little opposition, except from the Social Democrats.

The budget commission proved ungenerous only in one detail: it would grant but three of the six new cavalry regiments demanded by the bill. The other provisions were all approved. In addition to the existing forces there were to be raised 18 battalions of infantry, 34 squadrons of cavalry, 7 battalions of foot artillery, 11 of pioneers, 13 of transportation of troops, and 11 of train, a total of 136,000 men (including officers) and 27,000 horses. The annual contingent of recruits was increased by 63,000, and the peace footing will be 661,176 as compared with 544,211 under the law of 1912. When the bill was reported to the Reichstag there was little discussion; even the Social Democrats were thinking more about the financial than the military measures. On June 30 the bill was passed, against the votes of the Social Democrats, Poles, and Alsatians; and in addition, the three cavalry regiments struck out in committee were restored by vote of the Right, the National Liberals, and almost all of the Centre.

The New Taxes. It was easy to decide on a larger army; it was quite a different thing to pay for it. The cost of carrying the new law into effect was estimated at almost a billion marks, of which 435,000,000 would fall due in 1913; 285,000,000 in 1914, and 178,000,000 in 1915. Over and above this non-recurring expenditure, the running expenses of the army would be increased in 1913 by 54,000,000 marks, in 1914 by 153,000,000 marks, and in 1915 by 186,000,000. To cover the extraordinary defense contribution, i.e., non-recurring direct tax on property at the rate of ½% on all estates exceeding 10,000 m. and of 2% on incomes exceeding 50,000 m. For the recurring expenditures, funds would be raised from a stamp-tax, and an inheritance-tax. In the heated controversy which these proposals engendered, two issues were fundamental. In the first place the Social Democrats were extremely anxious to inaugurate imperial graduated income, inheritance, and property taxes; while at the other extreme the Conservatives were determined to combat both inheritance and property taxes; and in between were the National Liberals, who would rather tax the property and inheritances of agrarian nobles than touch the incomes of their own constituents, the industrial bourgeoisie. In the second place, the advocates of states-rights, in the Bundesrat as well as in the Reichstag, regarded all imperial direct taxation, whether of income, inheritance, or property, as an encroachment upon the prerogatives of the states, and a dangerous innovation. For a time, the Centre joined with the National Liberals in calling for an imperial property tax; to this the chancellor set his veto. The augmentation of the matricular contributions of the states was opposed by the same two parties. Finally a property-increment tax was decided upon as a compromise in which all parties except the Right could concur. A vexatious detail remained to be settled. Would the princes of the empire be liable to the new taxes? In deference to the Conservatives, the National Liberals, at the last moment, cast a deciding vote in favor of exempting the princes, to the utter disgust of the extreme Left. The third reading of the entire finance law—including the defense contribution, the property-increment tax, the stamp-tax, and the sugar tax,—was passed on June 30. The Social Democrats were favorable to the defense contribution, and the property increment tax as the beginnings of taxation of the rich, but opposed the augmentation of the war treasure, the exemption of the princes, the stamp tax, and the continuation of the burdensome sugar tax. The Poles and Alsatians voted in the negative from force of habit. Against the property increment tax the Right protested in the name of state-rights and registered a feeble protest with its 63 negative votes. Only the National Liberals and the Centre seemed thoroughly satisfied, and the leaders of both parties were effusively congratulated by the chancellor.

A word should be said in explanation of the defense contribution and the property increment tax. (1). The contribution reaches both income and property, and is expected to bring in almost a billion marks. An estate, including real and personal property, is liable to the defense contribution if it exceeds 10,000 m., but is exempt up to 30,000 m. if the possessor has not more than 4000 m. income, and up to 50,000 m. if he has less than 2000 m. income. Incomes are taxed for the contribution if they exceed 5000 m. An estate is taxed .15% on the first 50,000 m., .35% on the next 50,000 m., .50% on the next 100,000 m., and 1.50% on amounts exceeding 5,000,000 m. (2). The property increment tax is reckoned every three years on the amount by which a man's total real and personal property has increased during that period, and will fall due first on December 31, 1916. Up to 20,000 m. estates are exempt, and up to 10,000 m. increments are exempt. The scale of taxation is on a basis of a double progression, i.e., in proportion to the estate and in proportion to the increase. The rate on increments of from 10,000 m. to 50,000 m. is 0.75%; from 50,000 m. to 100,000 m., 0.90%, and so on until 1.50% is reached for increments exceeding 1,000,000 m. But the tax is increased by 0.1% of the increment if the estate exceeds 100,000 m., 0.2% if it exceeds 200,000 m. . . . and 11% if it exceeds 10,000,000 m. In drafting this elaborate scheme the German legislators were not unmindful of the encouragement due to fathers of large families; a paterfamilias with less than 100,000 m. in property and with more than two children receives a 5% reduction in his tax for the third and each subsequent child.

Other Bills. Two other bills were passed by the Reichstag before its adjournment on June 30. The citizenship bill made it easier for Germans living or born abroad to retain their German citizenship, and created a central bureau in the foreign office to assist Germans who wished to regain their citizenship. The military penal law enabled military tribunals to exercise greater clemency in dealing with the indiscretions of young and intoxicated soldiers; it was especially advantageous in permitting the alleviation of sentences imposed June 27 on seven Reservists and members of the Landwehr who failed to observe due decorum while under the influence of alcoholic stimulants at Erfurt on April 16.

The Krupp Case. The most effective antidote to militarism was the sensational allegation made on April 18 by Dr. Liebknecht, the Social Democratic orator. The great German armament firms, notably, the Krupp family, so often praised as patriotic and public-minded manufacturers of the arms for Germany, were now accused of misinforming the French press in order to stimulate militarism, of obtaining public secrets by bribery and underhand methods, of conspiring with other firms to force up the price of munitions of war. On the following day, April 19, the Centrist Dr. Pfeiffer demanded explanations, and reminded the minister of war that some years ago the Centre had proved that the supposedly patriotic Krupp firm was selling its wares cheaper abroad than to the Fatherland. So unsatisfactory were the explanations offered by the ministry, that on April 21 the Centre brought in a bill requesting the chancellor to appoint a commission of experts and of Reichstag deputies to investigate the foundations of Dr. Liebknecht's charges. The commission was constituted accordingly and met on November 14; but Dr. Liebknecht was debarred and the Social Democrats refused to have anything to do with the commission. In the meantime the military court at Berlin tried seven military officials suspected of complicity in the malpractices of the Krupp firm, and, finding them guilty, on August 5, imposed short terms in prison varying from three weeks to six months. The more interesting phase of the Krupp case began on October 23 with the trial of Maximilian Brandt, a former agent of the firm, and of Otto Eccius, a director, before a Prussian criminal court. Damaging evidence was brought to light, but no such sensational revelations were forthcoming as had been anticipated. Herr Eccius, as "the man higher up," was dismissed with a fine of 1200 m., while Brandt was sentenced to four months in jail.

The Fall Session. The Reichstag as it met on November 25, 1913, had changed in several respects since its first meeting in 1912. Bye-elections had increased the numerical strength of the Left by 5; Social Democrats had 111 votes instead of 110, the Progressives 44 instead of 41, the National Liberals 45 instead of 44, while the Centre had dropped from 90 to 89, the Conservatives from 45 to 42. While the Left had gained in numbers, it had not fulfilled the expectations awakened in the last general election. On important measures, such as the army and finance bills, the National Liberals had shown more of a tendency to coöperate with the Centre than with the Social Democrats; and there seemed to be no possibility of a working coalition of the Left. The Centre, moreover, had manifested surprising vitality, had ventured to censure the government, had passed its bill for the suspension of the Jesuit law, and had been the party to take up Dr. Liebknecht's Krupp revelations. In their congress at Metz, August 16-23, the Catholics of Germany exhibited unexpected unanimity, and expressed themselves with undiminished vigor on the question of education and the Jesuit law, and resolved to carry forward the work of social amelioration outlined by Ozanam and Kolping. The Social Democratic Congress, on the other hand, faced a serious situation. In bye-elections the Socialist vote had fallen off in alarming fashion. *Vorwärts* had lost thousands of subscribers. The great leader of the German Social Democrats, August Bebel (q.v.) was no longer there, and his place could hardly be filled by Fritz Ebert, who was chosen to succeed him as party chairman. Worst of all, the split between opportunists and revolutionaries was daily growing wider; dependence on National Liberal votes in the general elections had resulted in weaker protests against militarism, more of a tendency to compromise; and in voting on the advisability of inaugurating "mass strikes" to obtain franchise reform in Prussia, only 150 of the delegates assembled at Jena were for immediate action, while 240 were willing to adopt the "principle," but not as yet the practice, of the general strike.

When the Reichstag met again on November 25, a government bill for the more effective prevention and punishment of espionage came up for consideration, and, significantly enough, it was with the Centre and not with the National Liberals, that the Social Democrats joined in protesting against the press restrictions in article ix . The budget for 1914 next attracted attention. It balanced at 3,403,011,671 m. But presently, budget, espionage, and all were forgotten in the exciting discussion of the Zabern incident.

The Zabern Incident. Zabern, or Saverne, a quiet little town of Alsace, garrisoned by the 99th Infantry, had been terribly excited by the brutal attitude of the German officers. Lieutenant von Forstner, a young nobleman, remarked that he would be willing to give 10 m. out of his own pocket to any German soldier who would run his bayonet through an Alsatian blackguard (Wackes). In spite of popular indignation von Forstner was upheld by his superiors, Colonel von Reutter and General von Deimling, with the result that German soldiers were hooted at by the French populace, and von Forstner was afraid to appear in the streets without a corporal's guard. The young nobleman still further earned the hatred of the town by striking with his sword a lame shoemaker, who had laughed at him in the street. In Paris, *Le Matin* appeared with furious denunciations of German tyranny in Alsace-Lorraine. In Strassburg and Metz great demonstrations were instituted to show sympathy for the townsmen of Zabern. In Berlin the Social Democrats held anti-militarist meetings. The Reichstag, too, was agitated. When questioned on December 1, the chancellor said he would give full explanations later. On December 3 he was interpellated on the subject. In the meantime the minister of war, von Falkenhayn, had obtained the emperor's instructions to uphold the army without compromise or apology; it was therefore with confidence and assurance that he asserted the necessity of maintaining the authority of the army against the insults of Francophil Alsatians, and despite the criticism of political agitators. A tumult of shouts and jeers expressed the Reichstag's answer; and on the following day all parties except the Conservatives joined in a vote of no confidence (293 to 54). The trouble might have been averted by a prompt removal of the offensive von Forstner; it was now lessened by promises that the officers would be court-martialed. In order to prevent further outbreaks, the troops were removed from Zabern to Hagenau, some 25 miles away, and, incidentally, the tradesmen of Zabern lost the lucrative custom of the German soldiers. The interesting question now arose, whether the chancellor would resign after the vote of censure. Had the other parties joined with the Social Democrats in unyielding opposition, they might have forced Herr von Bethmann-Hollweg to retire. As it was, the Social Democrats and Alsatians were left alone, and Herr von Bethmann-Hollweg was enabled triumphantly to declare that the position of the chancellor depended solely upon imperial prerogative, and that the privilege recently acquired by the Reichstag of expressing judgment after interpellations implied no control of the government. See also **Socialism**.

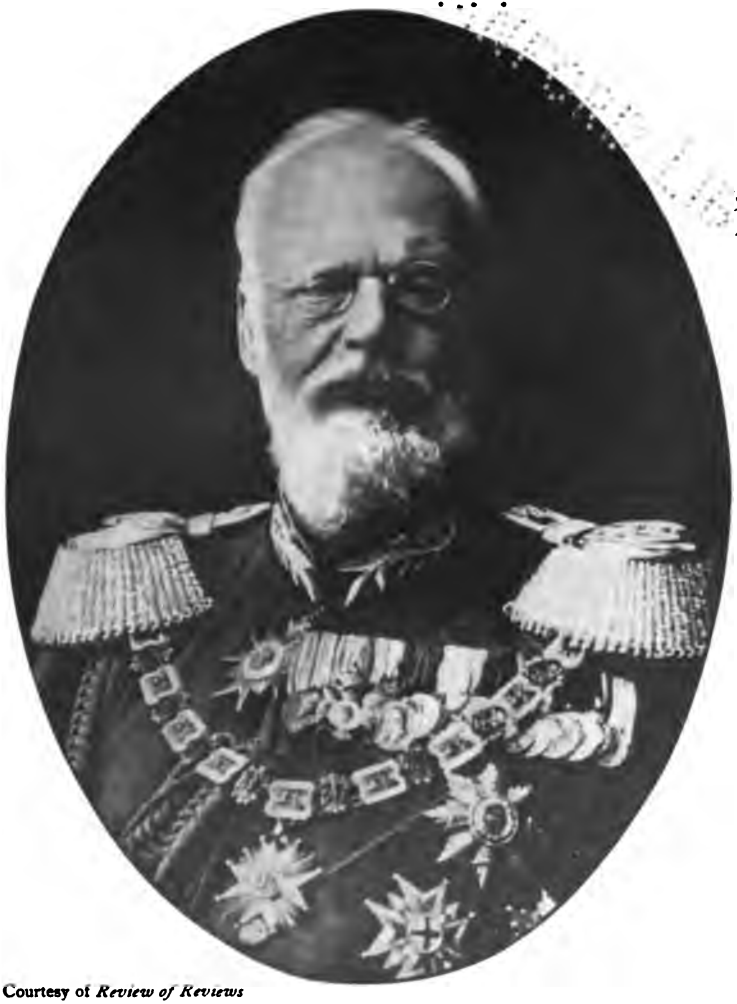
Foreign Affairs. In the international entanglement which grew out of the Balkan wars Germany played no inconsiderable part as the loyal ally of Austria-Hungary, and on the other hand, the German ambassador at London worked with Sir Edward Grey in the interests of European peace—at least, that was the report of the chancellor. In general, German influence seemed to have been exerted in favor of Turkey, and many comments were made upon the fact that the Turkish army had been drilled by German officers, while the opposing armies had profited by French instruction. An impression to the contrary was created in September by King Constantine's eulogy of the German army and expression of his indebtedness to German tactics—a eulogy so extravagant that it aroused jealousy in Paris. The Triple Alliance seemed to be stronger, if anything, after the wars than before, although the interests of Austria-Hungary had almost involved the Triple Alliance in war, and a difference of opinion had arisen after the Treaty of Bucharest, when, instead of seconding Austro-Hungarian demands for revision, Emperor William had exchanged congratulatory telegrams with King Charles of Rumania. One reason for the vigor of the Triple Alliance was to be sought in the fact that Herr von Jagow, who, as ambassador at Rome, had helped to renew the Triple Alliance a year ago, was now German foreign minister, having succeeded Kiderlen-Waechter, who died December 30, 1912. Anglo-German relations were characterized throughout the year by mutual endeavor to eliminate misunderstandings between the two countries. In discussing foreign affairs in the Reichstag, von Bethmann-Hollweg voiced his approval of the British policy in Turkey, and especially in Asia Minor. The improvement in Anglo-German relations was marked by an attempt to moderate Anglo-German naval competition. On February 7, Admiral von Terpitz, after consulting with Herr von Jagow, announced that the 16-to-10 relation was quite acceptable. About a month later Mr. Churchill, speaking before the Commons, suggested that Germany and Great Britain might agree to a year's interruption of their naval-construction programmes or otherwise lessen their rivalry, provided a ratio of 16-to-10 could be maintained. In commenting on the idea, the German press was inclined to look to Great Britain to take the initiative in bringing about the "naval holiday." For a discussion of Franco-German relations, see **France**, *History;* also the *Zabern Incident* (*supra*).. See also **Norway**, *Foreign Affairs.*

Other Events. Among the numerous celebrations which took place during the year, the Prussian centennial celebration of the War of Liberation (March 10), the Emperor's Jubilee or 25th anniversary (on June 13), the Kelheim festivities (on August 25), and the centennial of the "Battle of Nations" at Leipzig (on October 16), might be mentioned. On this latter occasion a pretentious monument was dedicated in the presence of German premiers and representatives from Austria, Sweden, and Russia. The French press could not well sympathize with such jubilations, and contented itself with ridiculing the inartistic character of the Leipzig memorial.

Alsace-Lorraine. The Zabern incident, noted above, was not the only cause of ill-feeling between the empire and the Reichsland. The year began with a series of inflammatory speeches delivered by Herr Wetterlé, a deputy in the Reichstag. Almost at the same time the *Souvenir Alsacien-lorrain*, a society whose function was to keep alive the memory of dead heroes, was dissolved under article 2 of the association law, because it disseminated a spirit of hostility toward the German government. In May the government asked the Bundesrat to pass two exceptional laws, one of which would allow the Statthalter to dissolve dangerous societies with greater expedition. The other would add a provision to the press law relative to the prohibition of French publications in Alsace-Lorraine. The second Chamber of the Diet protested most strenuously against these measures and expressed the "conviction that the peaceful development of our land will be seriously disturbed by the government's policy of exceptional legislation, and that the people of Alsace-Lorraine can and will of their own accord safeguard their political relations against all nationalist chauvinism."

Socialist Loss in Baden. In the elections to the Landtag on October 21, the Social Democratic vote was 12,000 less than in 1909, while the Centre gained 25,000, the Progressives 9000, the National Liberals 4900, and the Conservatives 3000. Although the Social Democrats lost 7 of their 20 seats, the coalition of the Left still retained a majority of 3 votes, and was able to elect the president.

End of the Bavarian Regency. When the Bavarian Landtag met on September 29, after almost eleven months' recess, it soon became evident that there was an overwhelming sentiment in favor of terminating the regency, notwithstanding the request made on December 22, 1912, by the Prince Regent Ludwig (who succeeded Prince Regent Luitpold in 1912) that the termination of the regency should not be considered at present. On October 30, 1913, the chamber passed a bill designed to depose the mad King Otto I. by a vote of 122-27. The



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LUDWIG III, KING OF BAVARIA
PROCLAIMED KING NOVEMBER 5, 1913

STANFORD LIBRARY

decision was supported by the upper chamber or Reichsrat, and after physicians had testified to Otto's insanity, the throne was declared vacant. The prince regent thus became King Ludwig III. of Bavaria, and on November 12 received homage. The Landtag then returned to a consideration of the budget. Some criticism of the ministry was occasioned by the augmentation of the civil list by over a million marks. The Centrist premier, Baron von Hertling, made an important statement in connection with the budget, indicating that the Clericals were disposed to turn their attention from militarism to social legislation. "It is now high time," he said, "to let armaments rest, for the German people can assume no more burdens for many years to come." The Socialists, he said, should come forward with practical proposals for social reform, instead of opposing everything. The premier also stated that he would consider proposals for the reform of the Reichsrat, which at present consists mostly of nobles.

The Guelphs and Brunswick. Between the Guelph family, now represented by the Duke of Cumberland, and the reigning Hohenzollerns, a feud has existed ever since Prussia dispossessed the Guelphs in Hanover in 1866. A reconciliation was foreshadowed on February 10, if not accomplished, by the engagement of the emperor's only daughter, Princess Victoria Louise, to Prince Ernst August, the son of the Duke of Cumberland. On February 15 Prince Ernst joined the Prussian army and as a Prussian officer took an oath to do or countenance nothing in violation of Prussia's territorial integrity. On May 24 the young couple were married. During the summer "the Guelph question" entered on a new phase; the query became, would Prince Ernst be allowed to ascend the throne of Brunswick—now in regency—without explicitly renouncing the claims of his family to Hanover. The crown prince of Prussia seemed inclined to demand a renunciation. The Kaiser, however, was more indulgent to his new son-in-law. In October a Prussian bill was passed by the Bundesrat rescinding the decision of 1907 that no Guelph could ascend the throne of Brunswick without making a formal renunciation of Hanover. Prince Ernst August was therefore allowed to become Duke of Brunswick on November 3, and promised loyalty "to the empire and to its exalted head. Soon afterward the Guelph party in Brunswick dissolved.

Mecklenburg-Strelitz. Another attempt to establish a representative diet in the grand duchy shipwrecked on the obstinacy of the aristocracy. The proposed constitutional reform favored by the grand duke, provided for only 10 elected delegates in an assembly of 22; even this measure of democracy was unacceptable. "The estates," as the grand duke said, "have been unable to agree to subordinate their private wishes and class interests to the common good."

Prussia. Unexciting elections to the Landtag were held on May 15. In spite of the inequitable three-class electoral law, the Social Democrats made gains, but still remained an insignificant minority; while the Conservatives by combining with either Centre or National Liberals could command a majority. The budget for 1914-15, discussed in December, balanced at 4,846,239,109 m. The expropriation of the Poles has been referred to above. It was significant that when the emperor visited Posen late in August, the nobles were polite and the people resentful.

Württemberg. In the new Lantag which met on January 9 as a result of the elections of December, 1912, Right and Left were evenly balanced. In electing the præsidium the Centre-Conservative *bloc* was successful, but subsequently a bye-election gave the other side of the House a majority. Premier von Weizsäcker made it clear, that in case the empire should suspend the Jesuit law, Württemberg would revive its own legislation on the subject.

Other States. In Saxony a National Liberal was elected president of the lower chamber of the Landtag, and a Conservative vice-president. In Schwarzburg-Rudolstadt plans for constitutional reform were announced by Freiherr von der Recker; in addition to the present Landtag (consisting of 4 representatives of large taxpayers and 12 delegates elected by direct secret suffrage) there are to be 12 representatives of the professions.

GERMANY, Archæology of. See Archæology.

GHENT EXPOSITION. See Expositions.

GIBRALTAR. A British crown colony, naval and coaling station, and *entrepôt* of British trade with the North African Arab states; a narrow peninsula extending southward from the southwest coast of Spain. Its area is 1⅞ square miles and its population (1911) 19,586, exclusive of military. Naval and military barracks, hospitals, etc., occupy the southern part; the naval harbor is on the west side. There are no trade returns, Gibraltar being practically a free port. Revenue and expenditure for 1911 were £94,573 and £73,390 respectively (£80,929 and £76,410 in 1910). The governor and commander-in-chief (General Sir A. Hunter in 1913) is sole administrator, without executive or legislative councils. A sanitary commission has in charge the drainage, water supply, etc. Their debt stood December 31, 1911, as £159,779.

GIFTS AND BEQUESTS. The following list of gifts and bequests in 1913 is compiled from the record kept by the *Chicago Tribune*. It does not include notice of any gifts and bequests of less than $5000. An exception to this rule is made in the case of one bequest of an unusual nature. In October, Mrs. Martha Fouse, a negro woman who was born a slave in Cass County, Mo., and sold from her parents when a very young girl, and who had accumulated in domestic service a considerable amount of money, contributed a scholarship valued at $2000 to the Curry Normal and Industrial Institute at Urbana, O. This is the largest gift ever made by any colored woman for educational purpose to any institution.

The total sum of gifts and bequests in 1913 was much less than that contributed in 1912. The record of the latter year was, however, phenomenal, and greatly exceeded the gifts and bequests made in previous years. In 1913 the record shows $169,851,442, compared with $241,821,719 in 1912. These totals of course include only donations of a public character. If the entire amount given and bequeathed were known, it would probably reach nearer five hundred than one hundred and fifty million.

Of the total amount given in 1913, $76,791,109 represents donations and $93,050,333 bequests. The total sum was distributed as follows: To charities of various kinds, $85,109,640; to educational institutions, $57,601,997; to religious bodies, $21,233,300; to art museums, galleries, and municipal improvements, $23,560,505; and to libraries $2,162,000. The largest individual amount was contributed by Andrew Carnegie, $6,620,000. The total contributions made by Mr. Carnegie for various purposes up to the present time, amounted to $209,200,800. John D. Rockefeller gave in 1913 $1,462,500. Mrs. Russell Sage gave $243,500. J. Pierpont Morgan left by will $800,000 for religious purposes and for charity. The value of his art collection, and that of Mr. Benjamin Altman, cannot be estimated in money.

Abbot, A. S., Bon Homme, S. D., gift to Yankton College, $15,000.

Abbott, Carrie T., Cambridge, Mass., will to Radcliffe College, $5000.

Abingdon, Ill., gift for library by John Mosser, $10,000.

Abington Hospital, Philadelphia, Pa., gift by G. W. Elkins, $185,000.

Academy of Design, will by Benjamin Altman, $100,000.

Adler, Simon, Baltimore, Md., gift to charity, $10,000.

Albion, Mich., gift of school building by Frank L. Besse, $15,000.

Albion College, will by Manly Chase, $5000; will by Thomas W. Palmer, $50,000.

Alderson, I. C., Alderson, W. Va., will to Baptist school, $10,000.

Alexander, Mrs. C. B., New York, gift to University of California, $75,000.

Allegheny City, Pa., gift to library by Andrew Carnegie, $150,000.

Allen, Katharine, Worcester, Mass., will to Worcester Technical Institute, $100,000; will to Memorial Hospital, $100,000; will to Tuskegee Institute, $5000; will to Hampton Institute, $5000; will to charities, $100,000.

Allen, Sarah J., Sandford, Me., will to hospital, $10,000.

Allen, Mrs. T. J., Boston, Mass., will to Harvard University, $30,000.

Allentown, Pa., will to Allentown hospital by Edward Harney, $200,000.

Allerbury, W. W., New York, will to charities, $145,000.

Altman, Benjamin, New York, will to Metropolitan Art Museum, collections valued at $15,150,000; will to charity, $250,000; will to Academy of Design, $100,000; will to Educational Alliance, $50,000; will to employes, $30,000,000.

Amen, H. P., Exeter, N. H., will to charity, $5000.

American Museum of Natural History, gift by Jessie Greer, $90,000.

American Natural History Museum, gift for south polar exploration, $22,500.

American Museum of Safety, gift by Andrew Carnegie, $5000.

American Seamen's Aid Society, gift by Mrs. Russell Sage, $25,000.

American Union of Hebrew congregation, gift by William Solomon, $10,000.

Amherst University, will by Addison Browne, $5000.

Anderson, Arthur A., New York, will to home missions, $35,000; will to New York Bible Society, $35,000.

Anderson, Elizabeth W., New York, gift to charity, $650,000.

Archbold, J. D., New York, gift to Y. M. C. A. and Y. W. C. A., $20,000.

Archbold, Mrs. J. D., New York, gift to Y. M. C. A. and Y. W. C A., $5000.

Arctic exploration, gift by National Geographic Society, $20,000.

Arlington, Mass., gift of town hall by Winfield Robbins, $200,000.

Arthington, Robert, will to missions, $4,000,000.

Atlanta Hebrew Orphanage, gift by Julius Rosenwald, $25,000.

Atlanta Tech., gift by John W. Grant, $25,000

Auchincloss, N. D., New York, will to Presbyterian Hospital, $7500.

Bailey, Emily, Langhorne, Pa., will to charity, $9600; will to library, $5000.

Baird, Lucy H., Philadelphia, Pa., will to charity, $60,000.

Baldwin, Henry C., Westchester, Pa., will to charity, $8000.

Bamert, Nathan A., Paterson, N. J., gift to hospital, $190,000.

Baptist Church, gift by J. D. Rockefeller, $50,000.

Bar Association, gift by Emily F. Southmayd, $100,000.

Barnard College, gift by various donors, $285,044.

Barnum, Henry U., Freeport, Ill., will to Middlebury College, $30,000.

Bates, Israel, Providence, R. I., will to Brown University, $40,400; will to charity, $188,500; will to church, $5000; will to library, $5000; will to Rhode Island School of Design, $25,000.

Beaumont, Cal., gift of library by Andrew Carnegie, $10,000.

Belcher, Henrietta W., Providence, R. I., will to church, $20,000.

Belmont School, will by Ida H. Rose, $5000.

Beloit College, gift by unnamed donor, $50,000.

Bernheimer, L. S., New York, will to charity, $5000.

Bernheimer, Max E., New York, bequest of stamps to Metropolitan Art Museum, $250,000; will to charity, $20,000.

Berry School, will by F. B. Shedd, $100,000.

Besse, Frank L., gift of school building to Albion, Mich., $15,000.

Bethlehem, N. H., gift to town hall by George T. Cruft, $100,000.

Bible Institute, gift by Charles M. Stimpson, $100,000.

Bittinger, B. F., Washington, D. C., will to church, $8000.

Blumenthal, Rebecca S., New York, will to charity, $8000.

Bonner, W., Philadelphia, Pa., will to charity, $10,000.

Borden, William W., Chicago, Ill., will to missions, $1,000,000.

Borland, Harriet B., Chicago, Ill., gift to church, $10,000.

Borton Medical Library, gift by Ella B. Wyman, $85,000.

Boston Museum of Fine Arts, will by Alice M. Curtis, $25,000.

Boston Symphony Orchestra, will by Henry L. Higginson, $1,000,000.

Boston University, gift by Anna Custer, $5000; gift by R. B. Robinson, $40,000.

Botanical Gardens, New York, will by Addison Browne, $21,750.

Bowdoin College, will by E. A. Drummond, $85,000; will by Frank Hartley, $15,000.

Boys' Republic, will by Mrs. D. M. Osborn, $5000.

Braddock Hospital, Braddock, Pa., gift of steel workers at Pittsburgh, Pa., $100,000.

Brady, Anthony N., New York, will to charity, $100,000.

Branch, John P., Richmond, Va., gift to charity, $10,000.

Bringhurst, Rebecca L., Philadelphia, Pa., will to charity, $50,000.

Brinkeroff, E. A., Englewood, N. J., will to charity, $12,000.

Brockton, Mass., will to Home of Aged by H. W. Howard, $185,000.

Brooklyn Jewish charities, gift by Julius Rosenwald, $25,000.

Brooks, Martha, Brookline, Mass., will to charity, $110,000.

Brooks, Mrs. S. H., Memphis, Tenn., gift of art museum to city, $100,000.

Brown, A. D., St. Louis, Mo., will to charity, $100,000.

Brown, Charlotte T. A., Philadelphia, Pa., will to charity, $365,000.

Brown, Elizabeth M., Stamford, Conn., will to charity, $45,000.

Brown, Jane F., Providence, R. I., will to charity, $240,000; will to church, $400,000.

Brown University, will by Israel Bates, $40,400; will by S. D. Potter, $5000.

Browne, Addison, New York, will to Harvard University, $10,000; will to Amherst College, $5000; will to botanical gardens, $21,750.

Browne, Henry B., Washington, D. C., will to Yale University, $100,000.

Browning, P. D., St. Louis, Mo., gift to Washington University, $1,000,000.

Bruming, Francis, gift to University of Cincinnati, $80,000.

Budds, Edward H., Mullinville, Kan., gift to Friends' Nursery, $40,000.

Bull, Stephen, Racine, Wis., will to Taylor Orphan Asylum, $20,000.

Bundy, Andrew J., Louisville, Ky., will to charity, $5000.

Burke, Mrs. Stevenson, Cleveland, O., gift to Cleveland Art School, $100,000.

Burns, Carl, New York, gift to charity, $5000.

Burns, Mrs. F. B., Chicago, Ill., will to church, $10,000.

Busch, Adolphus, St. Louis, Mo., will to charities, $270,000; gift to flood fund, $25,000.

Butler, J. J., New York, will to charity, $64,000.

Bristol, Mrs. L. A., Asbury, N. J., gift to church, $10,000.

Butterfield, Julia L., New York, will to Y. M. C. A., $2,630,000; will to charity, $500,000.

Byam, Charles F., Charlestown, Mass., will to church, $17,000.

Caball, Celeste L., Philadelphia, Pa., will to charity, $50,000.

Cadwallader, J. D., New York, gift to Princeton University, $100,000.

Caldwell, Idaho, gift of library by Andrew Carnegie, $12,500.

California Hospital, San Francisco, Cal., gift by various donors, $400,000.

California Redwood Park, gift by Phoebe Hearst, $1000; will by Carrie M. Jones, $1,000,000.

California, University of, gift by Mrs. C. B. Alexander, $75,000; gift by Templeton Crocker, $75,000; gift by Mrs. G. W. Hooper, $1,000,000; gift by John K. Keith, $150,000; gift by Helen M. Scripps, $10,635; gift by various donors, $300,000.

Callahan, Thomas, Leicester, Mass., will to church, $10,000.

Candler, Asa G., Atlanta, Ga., gift to Wesley Hospital, $150,000.

Carleton, J. H., Iowa Falls, Ia., gift to Carleton College, $10,000.

Carleton College, gifts by various donors, $10,000; gift by J. H. Carleton, $10,000.

Carnegie, Andrew, gift to American Museum of Safety, $5000; gift to Carnegie Foundation, $1,250,000; gift to Carnegie Technical School, $1,000,000; gift to Central College, Lafayette, Mo., $75,000; gift to Cornell University, organ, $20,000; gift to Dunfermline Trust, $2,000,000; gift to flood fund, $10,000; gift to German Peace Society, $25,000; gift to Morgan College, $50,000; gift to Olivet College, $25,000; gift to Vanderbilt University, $1,000,000; gift to Washburn College, $50,000. Libraries: To Allegheny City, Pa., $150,000; Beaumont, Cal., $10,000; Caldwell, Idaho, $12,500; Carnegie, Pa., $100,000; Chardon, Ohio, $8000; Dayton, Ohio, $15,000; Evansville, Ind., $10,000; Gaffney, S. C., $7500; Huntington Beach, Cal., $10,000; Kewana, Ind., $8000; Lincoln, Neb., $5000; Montclair, N. J., $25,000; Nutley, N. J., $20,000; Pittsburgh, Pa., North Side Library, $150,000; Ridgefield Park, $10,000; San Francisco, Cal., $375,000; Sturgeon Bay, Wis., $12,000; Watts, Cal., $10,000; Waupaca, Wis., $10,000; Worcester, Mass., $75,000.

Carnegie, Pa., gift by Andrew Carnegie to Carnegie Library, $100,000.

Carnegie Technical School, additional gift by Andrew Carnegie, $1,000,000.

Carpenter, A. P., Manchester, N. H., gift to library, $350,000.

Carroll, Mrs. J. S., Troy, Ala., gift to missions, $30,000.

Carver, Anne H., Philadelphia, Pa., will to charity, $175,000.

Case, Amelia, Laporte, Ind., will to church, $27,000.

Central College, Fayette, Mo., gift by Andrew Carnegie, $75,000.

Chamberlain, Leander D., Philadelphia, Pa., will to church, $30,000; will to Smithsonian Institution, $35,000.

Champaign, Ill., gift of library by W. B. McKinley, $5000.

Chardon, O., gift of library by Andrew Carnegie, $8000.

Charleston, S. C., gift to Medical College by various donors, $30,000.

Chase, Manly, Barry, Mich., will to church, $7000; will to Albion College, $5000.

Chase, R. D., Boston, Mass., gift to church, $5200.

Cheney, Mr. and Mrs. George S., New York, gift to Episcopal School, $10,000.

Chester Academy, will by Martha S. Hill, $5000.

Chicago, Ill., gift for public amphitheatre by Mrs. Harold McCormick, $10,000; tag day, $41,952; gift for charity by unnamed donor, $12,000.

Chicago, University of, gift by Laverne Noyes, $300,000.

Christian, George H., gift of men's club to Minneapolis, Minn., $30,000.

Cincinnati, University of, gift by Mary M. Ewing, $125,000; gift by Frances Brunning, $80,000.

Clancey, J. J., New York, will to charities, $201,450.

Clark, George M., Chicago, Ill., gift to Oberlin College, $37,000.

Clarke, E. W., Philadelphia, Pa., gift of playground to city, $78,000.

Cleveland, O., gift to German Hospital by Otto Leisy, $10,000; gift by various donors, $135,000; gift of various donors to Jewish Hospital, $60,000; gift to St. Vincent's Hospital by John D. Rockefeller, $25,000; gift to School of Journalism by D. R. Haines, $10,000.

Cleveland Art School, gift by Mrs. Stevenson Burke, $100,000; gift by various donors, $100,000.

Cleveland Memorial Fund, gift by various donors, $25,000.

Colby College, gift by David D. Stewart, $75,000.

Cole, Annie A., Washington, D. C., will to church, $10,000; will to charity, $8500.

Coleman, John C., San Francisco, Cal., will to Y. M. C. A., $25,000.

College of Commerce, gift by Jacob H. Schiff, $500,000.

College for Women, Cleveland, O., gift by various donors, $75,000.

Colorado College, gift by Mrs. A. D. Juillard, $100,000.

Colorado Law School, will by Olivia Thompson, $75,000.

Colton, J. M., Philadelphia, Pa., will to church, $250,000.

Columbia College, gift by Mrs. W. B. Cutting, $200,000; gift by various donors, $23,000.

Columbia University, gifts by various donors, $59,675; will by Mary B. Pell, $1,000,000.

Conkley, N. W., New York, gift to Western Theological Seminary, $100,000.

Conshohocken, Pa., gift to library, $5000.

Cook County, Illinois, gift for Sunday schools by various donors, $100,000.

Corbin, Nellie J., Yates City, Ill., will to church, $10,000; will to library, $5000.

Cornell Medical School, gift by Oliver H. Payne, $4,500,000.

Cornell University, gift of organ by Andrew Carnegie, $20,000; will by Maria E. Talles, $25,000.

Cornwell, V. E., Dubuque, Ia., gift to Tuskegee Institute, $10,000.

Cornwell, Z. R., Grand Rapids, Mich., will to Tuskegee Institute, $40,000.

Cotting, Amos, Boston, Mass., will to charity, $55,000.

Council Bluffs, Ia., will to orphanage by Lucy C. Knowles, $82,000.

Cowles, Edward B., Boston, Mass., will to charity, $60,000.

Crane, R. T., estate of, Chicago, gift to Y. W. C. A., $10,000.

Crawford, Matthew C., O'Hara, Pa., will to missions, $11,000.

Crearer, Orlando, Philadelphia, Pa., will to church, $10,000.

Crocker, Templeton, New York, gift to University of California, $75,000.

Cruft, George T., Bethlehem, N. H., gift for town hall, $100,000.

Cruft, Harriet, Boston, Mass., will to charities, $345,000.

Cullon, Julia, Hudson, O., will to church, $10,000.

Cunningham, Frank W., Portland, Me., gift to church, $10,000.

Cunningham, James, Portland, Me., will to church, $7000.

Curtis, Alice M., Milton, Mass., will to library, $15,000; will to Radcliffe College, $25,000; will to charity, $40,000; will to Boston Museum of Fine Arts, $25,000; will to small colleges, $15,000.

Curzon, Selena G., Baltimore, Md., will to charity, $8500.

Custer, Anna, Manchester, N. H., will to Manchester Art Gallery, $5000; will to Boston University, $5000.

Cutting, Mrs. W. B., New York, gift to Columbia College, $200,000.

Dade, Anna J., New York, will to charity, $7000.

Daley, Margaret, May's Landing, N. J., will to Villa Nova College, $5000.

Dartmouth College, gift by P. B. Stewart, $75,000.

Dawes, Charles G., Chicago, Ill., gift to charity, $100,000.

Dayton, O., gift to library by Andrew Carnegie, $15,000.

Dean, Eliza, P., Boston, Mass., will to church, $50,000.

Decatur, Ill., gift by various donors to hospital, $30,000; will for Art Museum by Anna B. Milliken, $1,000,000.

De Silvo, Carl H., New York, will to Institute of Arts, $50,000; will to church, $10,000; will to charity, $10,000.

Detroit College of Medicine, gift by various donors, $100,000.

Dickson, Fanny H., Flourtown, Pa., will to University of Pennsylvania, $5000; will to charity, $8000.

Dimock, Otis K., will to Yale University, $125,000; will to charity, $125,000.

Dobbins, Mary A., Mt. Holly, N. J., gift to charity, $10,000.

Dodd, Barbara C., Atlanta, Ga., will to Mercer University, $85,000.

Dodge, C. H., New York, gift to Y. W. C. A. and Y. M. C. A. $250,000.

Dodge, Grace, New York, gift to Y. M. C. A. and Y. W. C. A., $250,000.

Dodge, Mary C., gift to Vassar College, $10,000.

Doheny, E. L., gift to Fond-du-Lac, Wis., park board, $10,000.

Donovan, Mary M., Philadelphia, Pa., will to charity, $1500.

Donovan, P. S., Boston, Mass., will to charity, $30,000.

Dorchester, Mass., will to city by Charles H. Greenwood, $85,000.

Doremus, R. P., New York, will to Washington and Lee University, $1,100,000.

Doremus, R. P., New York, will to Washington University, $1,100,000; will to Washington and Lee University, $2,000,000.

Douglas, Jane, Omaha, Neb., will to church, $10,000.

Doup, Prudence C., Evanston, Ill., will to charity, $16,000.

Doyle, John and Horace, Detroit, Mich., gift of park to Niles, Mich., $100,000.

Draper, Harriet P., Hopedale, Mass., gift to church, $5000.

Draper, Nannie, Boston, Mass., will to charity, $5000.

Drexel, Lucy W., Philadelphia, Pa., will to charity, $170,000.

Drummond, E. A., Chicago, will to Bowdoin College, $85,000; will to charity, $26,000.

Drummond, Edward R., Bristol, Me., will to Bowdoin College, $80,000; will to church, $15,000; will to charity, $11,000.

Dubois, Catherine O., New York, will to charity, $27,000.

Dubois, Katharine L., Holland, Mich., gift to hospital, $5000.

Dubuque German College, gift by Mrs. Cyrus McCormick, $50,000.

Duke Bros., New York, gift to Trinity College, $1,000,000.

Duke, H. Z., Dallas, Tex., gift to church, $50,000.

Duluth, Minn., gift of park road by unnamed donor, $1,000,000.

Dunfermline Trust, gift by Andrew Carnegie, $2,000,000.

Dunham, A. C., Hartford, Conn., gift to Hartford Theological Seminary, $50,000.

Dupont, Mrs. R. I., Wilmington, Del., gift to Maternity Hospital, $50,000.

Eastman, George, Rochester, N. Y., gift to University of Rochester, $500,000.

Eaton, Cornelia, New York, will to charity, $80,000.

Eddy, Sarah, Chicago, Ill., will to charity, $7000.

Educational Alliance, will by Benjamin Altman, $50,000.

Edwards, Thomas, New York, will to church, $130,000.

Elkins, G. W., gift to Abington Hospital, Philadelphia, Pa., $185,000.

Emerson, Mrs. Ralph, Rockford, Ill., gift to hospital, $60,000.

Emery, Miss E. J., will to Salvation Army, $100,000.

Emery and Henry College, gift by various donors, $75,000.

Emory, Frederick W., Boston, Mass., gift to Institute of Technology, $100,000.

Englewood, N. J., gift to hospital by various donors, $100,000.

Episcopal Board of Missions, gift by various donors, $307,500.

Episcopal Church, gift by various donors, $307,500.

Episcopal School, gift by Mr. and Mrs. George S. Cheney, $10,000.

Eubaling, F. E., Urbana, Ill., will to library, $10,000.

Evans, Mary T., Philadelphia, Pa., will to charity, $15,000.

Evansville, Ind., gift of library by Andrew Carnegie, $10,000.

Ewing, Mary M., Cincinnati, O., gift to University of Cincinnati, $125,000.

Fagan, B. F., Philadelphia, Pa., will to charity, $75,000.

Fargo College, will by H. N. Lockwood, $5000.

Fairbanks, Delano, New York, will to charity, $8000.

Farren, Clementina, New York, gift to church, $150,000.

Farwell, Lydia, Medie, Pa., will to charity, $50,000.

Faxon, Henry M., Quincy, Mass., gift to charity, $25,000.

Feigen, David, Pontiac, Ill., will to library, $20,000; will to church, $5000; will to Illinois Wesleyan University, $75,000.

Finley, Margaret, New York, will to charity, $5000.

Fish, Hamilton, Boston, Mass., gift for Harvard College, $5000.

Fisk University, gift of alumni, $45,000; gift of Julius Rosenwald, $25,000.

Flagler, Henry M., St. Augustine, Fla., will to church, $75,000; will to University of Florida, $60,000; will to Stetson University, $75,000.

Flint, Alice, Fond-du-Lac, Wis., will to charity, $26,139.

Flood Fund, gift by Adolphus Busch, $25,000; gift by various donors, $1,179,489; gift by Andrew Carnegie, $10,000.

Florida, University of, will by Henry M. Flagler, $60,000.

Fond-du-Lac, Wis., gift by various donors, $10,000.

Fond-du-Lac, Wis., park board, gift by E. L. Doheny, $10,000.

Ford, James B., New York, gift to Rutgers College, $11,500.

Fouse, Mrs. Martha, gift to Curry Normal and Industrial Institute, Urbana, O., $2000.

Franklin and Marshall College, will by N. Z. Snyder, $25,000.

Frederick, Margaret H., Philadelphia, Pa., will to charity, $5250.

Frederick, Md., will to church by Ellen B. Payne, $6000.

Frick, Henry C., gift to church, $5000.

Friends' Nursery, gift by Edward H. Budds, $40,000.

Frink, B. W., Brookfield, Mass., will to charity, $14,000.

Fritz, John, Bethlehem, Pa., will to Fritz Laboratory, $150,000.

Fritz Laboratory, will by John Fritz, $150,000.

Gaffney, S. C., gift of library by Andrew Carnegie, $7500.

Gardiner, Anna L., York, Pa., will for Woman's Home, $400,000.

Garrett, Julia, Philadelphia, Pa., will to charity, $110,000; will to church, $5000.

Garrison, John, Newburgh, N. Y, will to Tuberculosis Hospital, $19,000; will to charity, $18,000.

Gary, Mrs. E. T., Binghamton, N. Y., gift for good roads, $5000.

Gates, Mrs. J. W., New York, to Y. M. C. A. and Y. W. C. A., $25,000.

Gates, Mrs. N. C., Omaha, Neb., will to church, $25,000.

German Peace Society, gift by Andrew Carnegie, $25,000.

Ginn, Edward, Boston, Mass., gift to World Peace Society, $10,000.

Glendale, Cal., gift of library by Andrew Carnegie, $12,500.

Glide, Mrs. J. H., San Francisco, Cal., gift for Working Girls' Home, $100,000.

Gode, Frederick N., New York, will to Metropolican Museum, $5000; will to Museum of Natural History, $5000.

Goetze, Theodore, New York, will to charity, $54,000.

Goodwin family, Hartford, Conn., gift to Y. M. C. A., $12,000.

Gordon, R. R., will to church, $40,000.

Goucher College, gift by various donors, $1,000,000.

Gould, Roswell G., Kearney, Neb., will to mission, $135,000.

Grace, Joseph P., New York, gift to church, $25,000.

Grant, John W., Atlanta, Ga., gift to Atlanta Tech., $25,000.

Grant, Mrs. Smith, Pawtucket, R. I., gift to Y. M. C. A., $50,000.

Greensburg, Ind., will to church by John Shellhorn, $25,000.

Greenwood, Charles H., Dorchester, Mass., will to city, $85,000; will to church, $34,000; will to charity, $9000.

Greer, Jessie, New York, will to American Museum of Natural History, $90,000; will to Mount Sinai Hospital, $10,000.

Gregory, Marie C., St. Louis, will to charity, $100,000; will to Washington University, $50,000; will to church, $50,000; will to library, $100,000.

Grubt, R. M., Keezleton, Va., will to charity, $20,000.

Guppy, Hannah E., Dover, N. H., will to charity, $5000.

Hackensack, N. J., various donors to charity, $25,000.

Haines, D. R., Cleveland, O., gift to School of Journalism, $10,000.

Hall, Mrs. W. C. J., Jamestown, N. Y., will to church, $3000; will to charity, $2800.

Hampton Institute, gift by Katharine Allen, $5000.

Harney, Edward, Allentown, Pa., will to Allentown Hospital, $200,000; will to church, $5000.

Harriman, Mrs. E. H., New York, gift to Red Cross Movement, $75,000; gift to charity, $10,000.

Harris, N. W., Chicago, Ill., gift to Northwestern University, $250,000.

Hartford Theological Seminary, gift by A. C. Dunham, $50,000; gifts by various donors, $245,000.

Hartley, Frank, New York, will to Princeton University, $105,000; will to Bowdoin College, $15,000.

Hartshorn, Sarah E., Boston, Mass., will to schools, $75,000.

Harvard College, gift by Hamilton Fish, $5000.

Harvard University, will by Mrs. T. J. Allen, $30,000; will by Addison Browne, $10,000; gift by Japanese Alumni, $20,000; will by Sarah A. Matchett, $150,000; will by Katherine C. Pierce, $10,000; gift by L. W. Robinson, $5000; gift by Blanche Skimmin, $5000; summer donations, $101,687; gift by various donors, $150,000.

Haskill, W. C., Kansas City, Mo., gift to church, $8000.

Hastings College, gift by various donors, $100,000.

Hawley, Annie M., Pottstown, Pa., will to hospital, $25,000.

Healey, J. J., Gloucester, Mass., will to charity, $50,000.

Hebrew Institute, gift by Julius Rosenwald, $50,000.

Hebrew Union College, gift by Dr. E. G. Hirsch, $2500; gift by Adolf Ochs, $5000; gift by Julius Rosenwald, $10,000; gift by Jacob Schiff, $50,000; gift by William Solomon, $5000; various donors, $135,255.

Heckster, Stevens, Philadelphia, Pa., gift to University of Pennsylvania, $10,000.

Herdman, Angie P., Los Angeles, Cal., will to charity, $100,000.

Heritage, L. F., Emporia, Kan., will to charity, $30,000.

Herndon, George, will to University of Virginia, $16,000.

Hester, Mrs., Pittman, N. J., will to church, $7500.

Higgins, Mrs. M. P., Worcester, Mass., will to schools, $75,000.

Higginson, Henry L., Boston, Mass., will to Boston Symphony Orchestra, $1,000,000.

Hill, James J., Minneapolis, Minn., gift to United Lutheran Church, $50,000; gift to St. Olaf's College, $50,000; gift to Williamette College, $250,000.

Hill, John J., St. Paul, Minn., gift to charity, $10,000.

Hill, Martha S., Chicago, will to charity, $30,000; will to Art Institute, $30,000; will to Y. M. C. A., $10,000; will to Chester Academy, $5000.

Hills, Sarah B., New York, will to church, $150,000.

Hirsch, Dr. J. G., Chicago, Ill., to Hebrew Union College, $2500.

Hirsch, Leon, New York, will to charity, $15,000.

Holland, Mich., gift to hospital by Katharine L. Dubois, $5000.

Holmes, A. E., gift to Y. M. C. A., $15,000

Home for Artists, will by Mrs Spencer Trask, $3,000,000.

Home Missions, will by Arthur A. Anderson, $35,000.

Hood, Margaret E. S., Hagerstown, Md., will to colleges, $17,000.

Hooper, Mrs. G. W., Berkeley, Cal., gift to University of California for medical research, $1,000,000.

Horn, Mabel M., San Francisco, Cal., will to Salvation Army, $30,000.

Howard, H. W., Brockton, Mass., will to Home of Aged, $185,000.

Hoyt, Louis, New York, will to charity, $141,195.

Humphreys, Thomas A., Staunton, Va., will to charity, $35,500.

Huntington Beach, Cal., gift of library by Andrew Carnegie, $10,000.

Huston, A. F., Coatesville, Pa., gift to Y. M. C. A., $15,000.

Huston, C. L., Coatesville, Pa., gift to Y. M. C. A., $25,000.

Hutchinson, Mary, Somerville, Mass., will to charity, $50,000.

Hutter, Karl, New York, will to charity, $500,000.

Hutton, W. M., Philadelphia, Pa., will to charity, $15,000.

Hyde, Richard, New York, will to charity, $25,000.

Illinois Wesleyan University, will by David Felgen, $75,000.

Illinois Woman's College, gift by A. C. Rankin, $10,000.

Indiana Central College, gift to Indiana Central College, $100,000.

Institute of Arts, will by Caril H. De Silva, $50,000.

Institute of Technology, Boston, Mass., gift by Frederick W. Emory, $100,000.

Irish Home Rule Fund, gift by various donors, $10,000.

Isham, Katherine S., Chicago, Ill., will to church, $22,000.

Ives, Marie, will for library, New Haven, Conn., $400,000.

Japanese Alumni, gift to Harvard University, $20,000.

Jardine, Dudley, New York, will to charity, $50,000.

Jewish Publication Society, gift by Jacob Schiff, $50,000.

Johnson, Anna M., Providence, R. I., will to charity, $8000; will to church, $10,000.

Jones, Carrie M., San Francisco, Cal., will to University of California, $100,000.

Jones, Frank R., Buffalo, N. Y., will to charity, $70,000.

Juillard, Mrs. A. D., New York, gift to Colorado College, $100,000.

Kansas City, Mo., to Helping Hand Association by various donors, $22,500.

Kansas City, Mo., gift of library by John B. White, $40,000.

Kansas City University, will by S. W. Murphy, $25,000.

Kearcher, Samuel H., Pottsville, Pa., will to church, $70,000.

Keenan, F. J., Fond-du-Lac, Wis., will to charity, $105,000.

Keith, John, San Francisco, Cal., gift to University of California, $150,000.

Kellogg, Mrs. M. A., Chicago, Ill., gift to University of Rochester, $25,000.

Kennedy, Mrs. J. S., New York, gift to School of Religious Pedagogy, $500,000.

Kewana, Ind., gift of library by Andrew Carnegie, $8000.

Kitchell, J. W., Rano, Ill., gift for good roads, $50,000.

Klein, Leon, Chicago, Ill., will to charities, $25,000.

Knowles, Lucy C., will to Orphanage Council Bluffs, Ia., $82,000.

Koch, Emma, Philadelphia, Pa., will to charity, $16,250.

Kountze, C. B., Denver, Colo, will to charity, $50,000.

Lafayette College, gift by unnamed donor, $90,000.

Lamborn, T. D., Westchester, Pa., will to hospital, $75,000.

Lang, Mrs. Henry, Montcalm, N. J., gift to Art Museum, $55,000.

Layton, Frederick, Milwaukee, Wis., gift to Home for Invalids, $100,000.

Law, Cornelius A., Philadelphia, Pa., will to church, $196,000.

Le Bendit, Sigmund, New York, will to charity, $5000.

Leisy, Otto, Cleveland, O., gift to German Hospital, $10,000.

Leonard Hall, Philadelphia, Pa., gift by Charles M. Schwab, $14,000.

Letptle, Louise, Philadelphia, Pa., will to charity, $15,000.

Levy, Otto, Cleveland, O., gift to hospital, $10,000.

Lewisohn, Adolph, New York, gift to College of City of New York, $200,000.

Liebman, Joseph, New York, will to charity, $11,000.

Lincoln, Neb., gift of library by Andrew Carnegie, $5000.

Llewellyn, Lewis, Bay View, Wis., gift to library, $20,000.

Lockwood, H. N., Washington, D. C., will to charity, $60,000; will to Whitman College, $5000; will to Fargo College, $5000; will to Yankton College, $5000.

Loessel, Albert, New York, will to Yale University, $42,000.

Loree, L. F., gift to Rutgers College, $5000.

Loomis, William N., New York, will to charity, $15,000.

Lowell, Mass., will to city by F. B. Shedd, $100,000; will to city hospital, $100,000.

Lucas, W. E., Philadelphia, Pa., will to charity, $10,000.

Lundsbury, R. V., New York, gift to Rutgers College, $11,500.

Lyfort, W. E., Kewanee, Ill., will to church, $25,000.

Lyman, Joseph, New York, will to Yale University, $80,000.

McBeth, Alfred, Crystal Lake, Ill., will to charity, $300,000.

McCormick, Mrs. C. H., gift to Shantung Christian University, $750,000.

McCormick, Mr. and Mrs. C. H., gift to Y. M. C. A. and Y. W. C. A., of New York, $25,000.

McCormick, Mrs. Cyrus, Chicago, Ill., gift to Dubuque German College, $50,000.

McCormick, Mrs. Harold, Chicago, Ill., gift for public amphitheatre, $10,000.

McGregor, James, Terre Haute, Ind., will to Utah University, $50,000; will to student endowment, $100,000; will to Terre Haute Hospital, $50,000; will to charity, $50,000.

Mack, Jacob W., New York, will to charity, $32,500.

McKinley, W. B., Champaign, Ill., gift to charity, $50,000; gift to library, $5000.

McKnight, Mary D., Galesburg, Ill., will to charity, $175,000; will to church, $260,000; will to Knox College, $86,000.

McKnight, S. T., Minneapolis, Minn., gift to library, $20,000.

McLean, Matilda, New York, will to charity, $37,000.

McManus, Hugh, New Orleans, La., will to charity, $7500.

McPherson, J. R., Jersey City, N. J., will to Yale University, $318,000.

McQuire, Peter, New York, will to charity, $50,000.

Macy, W. H., New York, will to charity, $65,000.

Madison, Wis., various donors to charity, $35,000.

Manchester, N. H., gift to library by A. P. Carpenter, $350,000.

Manchester Art Gallery, gift by Anna Custer, $5000.

Mandlin, Elmira M., Denver, Colo., $20,000.

Marshall, Charles H., New York, will to charity, $6000.

Martin, Mrs. J. E., New Britain, Conn., will to charities, $200,000.

Massachusetts Institute of Technology, gift by unnamed donors, $600,000.

Matchett, Sarah A., Boston, Mass., will to Harvard University, $150,000.

Mather, Mr., Cleveland, O., gift to Western Reserve College for Women, $50,000.

Meagher, Margaret, St. Louis, Mo., will to charity, $25,000.

Mehringen, Gustave, New York, will to charity, $17,922.

Meig, John, Pottstown, Pa., gift to Y. M. C. A., $50,000.

Memorial of Women of Civil War, gift by James A. Scrymser, $100,000; gift by various donors, $822,000.

Memphis, Tenn., gift of Art Museum to city, $100,000.

Mercer University, will by Barbara C. Dodd, $85,000.

Mercy Hospital, Chicago, Ill., will by F. S. Thompson, $200,000.

Merrill, Abbie E., New York, will to church, $10,000; will to charity, $5000.

Methodist Episcopal Church, South, by various donors, $150,000.

Metropolitan Art Museum, will by Benjamin Altman, $15,150,000; bequest of stamps, $250,000; will by Frederick N. Gode, $5000.

Metz, Charles, Omaha, Neb., gift to charity, $10,000.

Metzer, Adolph, Evansville, Ind., gift to charity, $10,000.

Michigan, University of, gift by Newberry family, $75,000.

Middlebury College, will by Henry U. Barnum, $30,000.

Milbank, Joseph, gift to Y. M. C. A. and Y. W. C. A., $10,000.

Milliken, Anna B., Decatur, Ill., will for Art Museum, $1,000,000.

Milwaukee, Wis, gift to Home for Invalids, $100,000.

Minneapolis, Minn., gift of Men's Club by George H. Christian, $30,000; gift to library by S. T. McKnight, $20,000.

Missions, gift by unnamed donor, $4000; will by Robert Arthington, $4,000,000; will by William W. Borden, $1,000,000; gift by Mrs. J. S. Carroll, $30,000; will by Matthew C. Crawford, $11,000.

Moloney, Martin, Philadelphia, Pa., gift to church, $13,000.

Montclair, N. J., gift to library by Andrew Carnegie, $25,000; gift to hospital by various donors, $200,000.

Morgan, J. Pierpont, New York, will to church, $600,000; will to charity, $200,000.

Morgan College, gift by Andrew Carnegie, $50,000.

Moore, Anna, New York, will to charity, $200,000.

Moore, Mr. and Mrs. R. W., gift to Princeton University, $100,000.

Morris, Arthur T., New York, will to charity, $20,000.

Morris, Edward, Chicago, Ill., will to charity, $370,000.

Morris and Co., Chicago, gift to charity, $40,000.

Morton, Charles, Philadelphia, Pa., will to charity, $75,000.

Mosser, John, Abingdon, Ill., gift for library, $10,000.

Moulton, Hannah S., Kensington, N. H., will to Tufts College, $25,000.

Moulton, Ruth W., Providence, R. I., will to missions, $8000.

Mount Sinai College, gift by various donors, New York, $650,000.

Mount Sinai Hospital, New York, gift by Jessie Greer, $10,000.

Murphy, J. W., will to Kansas City University, $25,000.

Museum of Fine Arts, Boston, Mass., will by Katherine C. Pierce, $50,000.

Museum of Natural History, will by Frederick N. Gode, $5000.

National Geographic Society, gift for Arctic exploration, $20,000; gift for south polar exploration, $22,500.

Nazarene University, Cal., gift by unnamed donor, $125,000.

Neustadter, Caroline, New York, will to charities, $1,535,000.

Newberry family, Detroit, Mich., gift to University of Michigan, $75,000.

New England Conservatory of Music, gift by unnamed donor, $100,000.

New Hampshire Historical Society, gift by Edward Tuck, $60,000.

New Haven, Conn., will by Marie Ives for library, $400,000.

Newton, Elizabeth M., San Francisco, Cal., will to Tuberculosis Hospital, $150,000; will to charity, $25,000.

New York, gift to city for playgrounds by unnamed donor, $3,000,000.

New York Bible Society, will by Arthur A. Anderson, $35,000.

New York Bureau of Political Research, gift by J. D. Rockefeller, $20,000.

New York, College of City of, gift by Adolph Lewisohn, $200,000.

New York Telephone Company, gift to Y. M. C. A. and Y. W. C. A. of New York, $25,000.

New York Tuberculosis Preventorium, by unnamed donor, $10,000.

Niles, Mich., gift of park by John and Horace Doyle, $100,000.

Norris, Jane McKee, Philadelphia, Pa., will to charity, $65,000.

Northwestern University, gift by N. W. Harris, $250,000; gift by Joseph Schaffner, $12,500; Mrs. Gustavus Swift, $10,000; gift by unnamed donors, $2,000,000.

Noyes, Laverne, Chicago, Ill., gift to University of Chicago, $300,000.

Nurses' Association, Providence, R. I., gift by various donors, $10,000.

Nutley, N. J., gift to library by Andrew Carnegie, $20,000.

Oakes, Josiah, Malden, Mass., will to charity, $30,000.

Oberlin College, gift by George M. Clark, $37,000; gift by unnamed donor, $100,000.

Occidental College, will by Mary H. Spires, $10,000.

Ochs, Adolf, New York, gift to Hebrew Union College, $5000.

Ogden, Robert C., Philadelphia, Pa., will to charity, $25,000.

Olivet College, gift by Andrew Carnegie, $25,000; gift by various donors, $25,000.

Omaha Tornado Fund, total, $1,185,687.

Osborn, Mrs. D. M., Utica, N. Y., will to Boys' Republic, $5000.

Osborn, Victor M., New York, will to Society for Prevention of Cruelty to Animals, $100,000.

Palethorpe, H. D., Philadelphia, Pa., will to church, $75,000; will to charity, $40,000; will to Park Commission, $60,000.

Palethorpe, Henry, Philadelphia, Pa., will to church, $80,000.

Palmer, Thomas W., Detroit, Mich., will to charity, $180,000; will to Albion College, $50,000; will to church, $20,000.

Patterson, Amos, Centerville, Ia., will to charity, $60,000.

Patterson, Sarah, White Plains, N. Y., will to Williams College, $100,000.

Payne, Ellen B., Frederick, Md., will to church, $6000.

Payne, Oliver H., New York, gift to Cornell Medical School, $4,500,000.

Peabody College for Teachers, Nashville, Tenn., gift by various donors, $500,000.

Pell, Mary B., New York, will to Columbia University, $1,000,000; will to Rutgers College, $1,000,000; will to Reformed Church, $1,000,000.

Pennsylvania, University of, will by Fanny H. Dickson, $5000; gift by Stevens Heckster, $10,000.

Perezog, Eleanor, Baltimore, Md., will to charity, $13,000.

Perks, Charles H., Houlton, Me., will to church, $40,000.

Peters, H. W., Seattle, Wis., will to church, $200,000.

Phelps, Mary R., New York, will to charity, $42,000.

Philadelphia, Pa., gift of playground to city by E. W. Clarke, $78,000; will to Fairmount Park by Ellen Phillips, $500,000; gift by Mrs. J. B. Samuel, $500,000.

Philadelphia Polyclinic College, gift by unnamed donor, $8000.

Phillips, Florence, New York, will to charity, $20,000.

Phillips, Thomas W., Newcastle, Pa., will to church, $75,000.

Phillips Exeter Academy, gift by unnamed donor, $50,000.

Pierce, Katherine C., Boston, Mass., will to Harvard University, $10,000; will to Proctor Academy, $5000; will to church, $20,000; will to charity, $30,000; will to Museum of Fine Arts, $50,000.

Pittsburgh, Pa., gift to North Side Carnegie Library by Andrew Carnegie, $150,000.

Pittsburgh, University of, gift by various donors, $650,000.

Platt, Jeanne, Canadensis, Pa., will to charity, $10,000.

Polyclinic Hospital, gift by Mrs. Russell Sage, $15,000.

Pope, Alfred A., Farmington, Conn., will to charity, $700,000.

Porter, S. D., Springfield, Mass., will to Brown University, $5000.

Poulson, Edward, Oakland, Cal., will to Snell Seminary, $30,000.

Presbyterian Hospital, New York, will by H. D. Auchincloss, $7500.

Presser, Theodore, Philadelphia, Pa., gift to charity, $100,000.

Princeton University, gift by unnamed donor, $125,000; gift by Mr. and Mrs. R. W. Moore, $100,000; gift by J. D. Cadwallader, $100,000; gift by Mrs. Russell Sage, $100,000; gift by W. B. Read, $250,000; gift by F. S. Thompson, $500,000; gift by Frank Hartley, $105,000.

Proctor Academy, will by Katherine C. Pierce, $5000.

Providence, R. I., gift to Rhode Island Hospital, $10,000.

Pullman Company, gift to Y. M. C. A., $10,000.

Purcell, Mary B., Los Angeles, Cal., will to charities, $9000.

Radcliffe College, will by Carrie T. Abbott, $5000; will by Alice M. Curtis, $25,000.

Rankin, A. C., Onarga, Ill., gift to Illinois Woman's College, $10,000.

Read, W. B., Northeast, N. Y., will to Princeton University, $250,000.

Red Cross Movement, gift by Mrs. E. H. Harriman, $75,000; gift by Mrs. Russel Sage, $75,000; gift by James A. Scrymer, $100,000; gift by Jacob H. Schiff, $100,000.

Reed, David, Monroe, Mich., will to Y. M. C. A., $5000.

Rees, Anna S., Philadelphia, Pa., will to charity, $4500; will to church, $8000.

Reformed Church, will by Mary B. Pell, $1,000,000.

Reilly, Catherine, New York, will to charity, $200,000.

Rensselaer Polytechnic Institute, gift by Mrs. Russell Sage, $30,000.

Rhode Island School of Design, will by Isaac C. Bates, $25,000.

Rhodes, Florence R., Boston, Mass., will to charity, $5000.

Ridgefield Park, gift of library by Andrew Carnegie, $10,000.

Riker, Samuel, New York, will to charity, $20,000.

Riverside, Cal., gift to Y. M. C. A. by various donors, $5120.

Robbins, Winfield, gift of town hall to Arlington, Mass., $200,000.

Roberts, Miriam F., Merion, Pa., will to charity, $4500.

Robertson, Andrew, Pottsville, Pa., will to charity, $5000.

Robinson, Campbell, Walla Walla, Wash., will to church, $10,000.

Robinson, L. W., gift to Harvard University, $5000.

Robinson, R. B., Malden, Mass., gift to Boston University, $40,000.

Rochester University, gift by George Eastman, $500,000; gift by Mrs. M. A. Kellogg, $25,000.

Rockefeller, John D., New York, gift to Rockefeller Institute of Medical Research, $500,000; gift to Y. M. C. A., $42,000; gift to Southern Methodist University, $250,000; gift to Denver Y. M. C. A., $15,000; gift to St. Vincent Hospital at Cleveland, O., $25,000; gift to Y. M. C. A. and Y. W. C. A., $450,000.

Rockefeller, J. D., Jr., New York, gift to Y. M. C. A., $42,000; gift to Y. M. C. A. and Y. W. C. A., $25,000.

Rockefeller, Mrs. J. D., Jr., gift to Y. M. C. A. and Y. W. C. A., $25,000.

Rockefeller Institute of Medical Research, gift by Henry Rutherford, $200,000; gift by J. D. Rockefeller, $500,000.

Rodman, Deborah K., Philadelphia, Pa., will to charity, $300,000.

Rose, Ida H., Los Angeles, Cal., will to library, $10,000; will to Belmont School, $5000; will to charity, $13,500.

Rosenwald, Julius, Chicago, Ill., gift to Hebrew Institute, $50,000; gift to Hebrew Union College, $10,000; gift to Fisk University, $25,000; gift to Brooklyn Jewish charities, $25,000; gift to Atlanta Hebrew Orphanage, $25,000; gift to Y. M. C. A. and Y. W. C. A., $50,000.

Russell, Horace, New York, conditional bequest to charity, $20,000; conditional bequest to church, $20,000.

Russell, Mary H., Philadelphia, Pa., will to hospital, $60,000.

Rutgers College, will by Mary B. Pell, $1,000,000; gift by L. F. Loree, $5000; gift by R. V. Lundsbury, $5000; gift by James B. Ford, $11,500.

Rutherford, Henry, Grand Isle, Vt., gift to Rockefeller Institute of Medical Research, $200,000.

Sage, Mrs. Russell, N. Y., gift to Red Cross Movement, $75,000; gift to Rensselaer Polytechnic Institute, $30,000; gift to school at Cartersville, Ga., $2500; gift to Polyclinic Hospital, $15,000; gift to Princeton University, $100,000; gift to Syracuse University, $34,000; gift to charity, $20,000; gift to church, $10,000; gift to American Seamen's Aid Society, $25,000; gift to Animal League, $2000.

Saintclair, Robert, Philadelphia, Pa., will to charity, $6000.

St. Louis, Mo., gift by unnamed donor, $25,000.

St. Olaf's College, gift by James J. Hill, $50,000; gift by other donors, $200,000.

Salvation Army, will by Miss E. J. Emery, $100,000; will by Mabel M. Horn, $30,000; gift by various donors, $125,000.

Samuel, Mrs. J. B., Philadelphia, Pa., gift to Fairmount Park, $500,000.

Samuels, Ellen Phillips, Philadelphia, Pa., will to Fairmount Park, $500,000.

Sanford, Stephen, Amsterdam, N. Y., will to charity, $180,000.

Sanford, Me., will to hospital by Sarah J. Allen, $10,000.

San Francisco, Cal., gift to library by Andrew Carnegie, $375,000; gift to Working Girls' Home by Mrs. J. H. Glide, $100,000.

Santa Barbara, Cal., gift of various donors to hospital fund, $100,000.

Sargent, Anna P., Boston, Mass., will to church, $24,500.

Sayers, John W., Philadelphia, Pa., will to charity, $9000.

Schiff, Jacob H., New York, gift for College of Commerce, $500,000; gift to Hebrew Union College, $50,000; gift to Red Cross Movement, $100,000; gift to Jewish Publication Society, $50,000.

Scholle, William, New York, will to charity, $12,500.

Schoolhouse, Charles, New York, will to charity, $5000.

School of Religious Pedagogy, gift by Mrs. J. S. Kennedy, $500,000.

Schwab, Charles M., gift to Leonard Hall, Philadelphia, Pa., $14,000.

Scripps, Helen M., will to University of California, $10,635.

Scrymer, James A., New York, gift to Memorial of Women of Civil War, $100,000; gift to Red Cross Movement, $100,000.

Seiz, Morris, Chicago, Ill., will to charity, $150,000.

Severance, L. H., Cleveland, O., gift to University of Wooster, $1,000,000.

Shantung Christian University, gift by Mrs. C. H. McCormick, $750,000.

Shardlon, Annie L., New York, will to charity, $18,000.

Shedd, F. B., Lowell, Mass., will to city, $100,000; will to City Hospital, $100,000; will to Berry School, $100,000.

Sheets, Emily, Philadelphia, Pa., will to charity, $9500.

Shelhorn, John, Greensburg, Ind., will to church, $25,000.

Shelly, Ellenoire, Baltimore, Md., will to charity, $18,000.

Sias, Charles D., will to charity, $250,000.

Simon, Herman, Easton, Pa., will to employes, $3,000,000.

Skimmin, Blanche, Boston, Mass., will to Harvard University, $5000.

Slimmer, Abraham, Dubuque, Ia., gift to charity, $5000.

Sloan, Karl, Boston, Mass., gift to charity, $6500; gift to library, $6000.

Sloane, E. A., Minneapolis, Minn., will to church, $10,000.

Sloane, Earl, Boston, Mass., gift for charity, $10,000.

Smalley, George N., Carver, Mass., will to charity, $10,000.

Smith, A. J., Patchogue, L. I., will to charity, $9000.

Smith, Richard, Philadelphia, Pa., will for playgrounds, $849,235.

Smith, Mrs. R. M., New York, gift to Y. M. C. A., $500,000.

Smith College, gift by Mrs. W. D. Straight, $50,000; gift by various donors, $950,000.

Smithsonian Institution, gift by Leander D. Chamberlain, $35,000.

Smitt, Mrs. A. M., New York, gift to Y. M. C. A., $500,000.

Snell Seminary, gift by Edward Poulson, $30,000.

Snyder, N. Z., Bethlehem, Pa., will to Franklin and Marshall College, $25,000.

Social Service Hospital, Los Angeles, Cal., gift by various donors, $75,000.

Society for Prevention of Cruelty to Animals, will by Victor M. Osborn, $100,000.

Solomon, William, New York, gift to American Union of Hebrew Congregation, $10,000; gift to Hebrew Union College, $5000.

Southern Methodist University, gift by various donors, $800,000.

Southmayd, Emily F., New York, gift to Bar Association, $100,000.

South polar exploration, gift by American National History Museum, $22,500; gift by National Geographical Society, $22,500.

Spears, May C. W., Brookline, Mass., will to Y. M. C. A., $25,000.

Spires, Mary H., Los Angeles, Cal., will to Occidental College, $10,000; will to Y. M. C. A., $10,000; will to charity, $25,000.

Steel workers at Pittsburgh, Pa., gift of Braddock Hospital, $100,000.

Stetson University, will by Henry M. Flagler, $75,000.

Stewart, David D., St. Albans, Me., gift to Colby College, $75,000.

Stewart, L. M., Yarmouth, Me., will to Yarmouth Academy, $5000

Stewart, Levi M., Minneapolis, Minn., will to charity, $5000.

Stewart, P. B., St. Albans, Me., gift to Dartmouth College, $75,000.

Stimpson, Charles M., Los Angeles, Cal., gift to Bible Institute, $100,000; gift to Y. M. C. A., $39,000.

Stokes, Anson P., New York, will to charity, $36,000.

Stotesbury, Mrs. E. T., Philadelphia, Pa., gift to Y. W. C. A., $50,000.

Straight, Mrs. W. D., New York, gift to Smith College, $50,000; gift to Y. M. C. A. and Y. W. C. A., $300,000.

Strauss children, New York, gift to charity, $185,000.

Stuart, John, Elburn, Ill., gift for good roads, $50,000.

Sturgeon, W. O., Boyne, Kan., gift to charity, $35,000.

Sturgeon Bay, Wis., gift of library by Andrew Carnegie, $12,000.

Summer donations to Harvard University, $101,687.

Sutherland, Emily F., N. Y., will to Yale University, $125,000.

Sutton, W. H., Norristown, Pa., will to schools, $3000; will to church, $3000.

Syracuse University, gift by Mrs. Russell Sage, $34,000.

Sweetser, Thomas W., Salem, Mass., will to charity, $10,000.

Swift, Mrs. G. F., Chicago, Ill., gift to colored Y. M. C. A., $5000.

Tag Day, Chicago, Ill., $41,952.

Talles, Maria E., New York, will to charity, $22,500; will to Cornell University, $25,000.

Taylor Orphan Asylum, will by Stephen Bull, $20,000.

Terre Haute Hospital, will by James McGregor, $50,000.

Thessalonia Institute, gift by Leander D. Chamberlain, $100,000.

Thompson, F. S., New York, will to Princeton University, $500,000; will to Mercy Hospital, Chicago, Ill., $200,000.

Thompson, Olivia, Denver, Colo., will to charity, $22,000; will to Colorado Law School, $75,000.

Thorkeld, Sisere, Fulton, Mo., gift to Woods College, $40,000.

Thornton, Mrs. F. F., gift to Vassar College, $75,000.

Thwaites, R. G., Madison, Wis., will to library, $10,000.

Tierney, Thcmas F., Philadelphia, Pa., will to charity, $2200.

Tilden, Edward, Chicago, Ill., gift to charity, $10,000.

Toberman, J. B., Los Angeles, Cal., will to church, $20,000.

Tobey, Frank, Chicago, will to charity, $15,000.

Townsend, Burden, Troy, N. Y., will to church, $10,000.

Trask, Mrs. Spencer, Saratoga, N. Y., will for Home for Artists, $3,000,000.

Treadwell, R. D., Portsmouth, N. H., will to charity, $7000.

Trinity College, gift by Duke Bros., $1,000,000.

Tuberculosis Hospital, San Francisco, Cal., will by Elizabeth M. Newton, $150,000.

Tuck, Edward, gift to New Hampshire Historical Society, $60,000.

Tuck, Mr. and Mrs. E., gift to charity, $63,000.

Tufts College, will by Hannah S. Moulton, $25,000.

Tuskegee Institute, gift by Katharine Allen,

$5000; gift by V. E. Cornwell, $10,000; will by Z. R. Cornwell, $40,000.

Tuxbury, Alfred C., Saco, Me., will to charity, $10,000.

United Lutheran Church, Minneapolis, Minn., gift by James J. Hill, $50,000; gift by various donors, $200,000.

Urbana, Ill., will to library by F. E. Eubaling, $10,000.

Utah University, will by James McGregor, $50,000; for student endowment, $100,000.

Van Axte, Frederick, New York, will to charity, $11,000.

Vanderbilt family, gift to Y. M. C. A., $300,000.

Vanderbilt, A. A., New York, gift to Y. M. C. A., $2000.

Vanderbilt, Frederick W., New York, gift to Yale University, $160,000.

Vanderbilt, L. W., New York, gift to Yale University, $160,000.

Vanderbilt, Mrs. W. K., New York, gift to Babylon (L. I.) Hospital, $4000.

Vanderbilt University, gift by Andrew Carnegie, $1,000,000.

Van Deursen, Margaret, Middleton, Conn., will to charity, $150,000.

Vavet, Louise, New York, will to church, $16,000.

Virginia University of, will by George Herndon, $16,000.

Von Post, Herman C., New York, will to charity, $170,000.

Waite, Fannie P., Cleveland, O., will to charity, $45,000.

Wanamaker, John, Philadelphia, Pa., gift to charity, $25,000.

Wardwell, Martha W., New York, will to charity, $20,000.

Warner, Nate, New York, will to charity, $50,000.

Washington College, gift by Andrew Carnegie, $50,000; gift by various donors, Topeka, Kan., $200,000.

Washington and Lee University, will by R. P. Doremus, $2,000,000.

Washington University, gift by R. D. Browning, $1,000,000; will by R. P. Doremus, $1,100,000; will by Marie C. Gregory, $50,000.

Watts, Cal., gift of library by Andrew Carnegie, $10,000.

Waupaca, Wis., gift of library by Andrew Carnegie, $10,000.

W. C. T. U., gift by H. C. Wisner, $40,000.

Weatherley, C. B., Burlington, Vt., will to charity, $200,000.

Wellesley College, gift by unnamed donor, $100,000.

Wesley Hospital, gift by Asa G. Cander, $150,000.

Western Reserve College for Women, gift by Mr. Mather, $50,000; gift by alumnæ, $80,000.

Western Union Theological Seminary, gift by N. W. Conkling, $100,000.

Weyerhaeuser, Frederick, St. Paul, Minn., gift to charity, $80,000.

White, John B., gift of library to Kansas City, Mo., $40,000.

White, Theodore G., New York, will to charity, $80,000.

Whitman College, will by H. N. Lockwood, $5000.

Whitney, Morgan, New Orleans, La., will to charity, $15,000.

Wilhere, Nellie M., Philadelphia, Pa., will to charity, $50,000.

Willamette College, gift by James J. Hill, $250,000; gift by various donors, $250,000.

Williams, Mrs. Nathaniel, Middleton, Del., will to church, $65,000.

Williams, Rebecca, Bellefontaine, O., gift for charity, $100,000.

Williams College, will by Sarah Patterson, $100,000.

Willimantic, Conn., gift to church by various donors, $12,000.

Wilmington, Del., gift to Maternity Hospital by Mrs. R. I. Dupont, $50,000.

Winans, Helen D., New York, will to charity, $50,000.

Winchester, Ky., gift of library by Andrew Carnegie, $30,000.

Winthrop, Gordenia, New York, gift to charity, $15,000.

Wisner, H. C., Medicine Lodge, Kas., will to W. C. T. U., $40,000.

Wood, Mrs. Alan, Conshohocken, Pa., gift to library, $5000.

Woods, W. S., Fulton, Mo., gift to Woods College, $59,200.

Woods College, gift by W. S. Woods, $59,200; gift by Sisere Thorkeld, $40,000; gift by other donors, $13,000.

Woodward, Sarah A., New York, will to charity, $10,000.

Wooster, University of, gift by L. H. Severance, $1,000,000.

Worcester, Mass., gift to Memorial Hospital by Katharine Allen, $100,000.

Worcester Technical Institute, will by Katherine Allen, $100,000.

World Peace Society, gift by Edward Ginn, $10,000.

Wyeth, F. H., Philadelphia, Pa., will to charity, $55,000.

Wyman, Ella B., Newburyport, Mass., will to Boston Medical Library, $85,000.

Wyman, Mrs. George, South Bend, Ind., gift to charity, $125,000.

Wyman, Mrs. G. W., South Bend, Ind., gift to charity, $5000.

Yale University, gift by alumni, $112,000; will by Henry B. Browne, $100,000; will by Otis K. Dimock, $125,000; will by Albert Loessel, $42,000; will by Joseph Lyman, $80,000; will by J. R. McPherson, $318,000; will by Emily F. Sutherland, $125,000; gift by unnamed donor, $10,000; gift by L. W. Vanderbilt, $160,000.

Yankton College, gift by A. J. Abbott, $15,000.

Yarmouth Academy, will by L. M. Stewart, $5000.

Y. M. C. A., gift by Pullman Company, $10,000; gift by J. D. Rockefeller, $42,000.

Y. M. C. A., Chester, Pa., gift by various donors, $90,000.

Y. M. C. A., Chicago, will by Martha S. Hill, $10,000.

Y. M. C A., Coatesville, Pa., gift by C. L. Huston, $25,000; gift by various donors, $40,000.

Y. M. C. A., colored, Chicago, gift by Mrs. G. F. Swift, $10,000.

Y. M. C. A., Danville, Pa., gift by various donors, $15,000.

Y. M. C. A., Denver, gift by J. D. Rockefeller, $15,000.

Y. M. C. A., Galesburg, Ill., gift by various donors, $140,000.

Y. M. C A., Hartford, Conn., gift by Goodwin family, $12,000.

Y. M. C. A., Hartford, Conn., gift by A. E. Holmes, $15,000.

Y. M. C. A., Hartford, Conn., gift by various donors, $300,000.

Y. M. C. A., Los Angeles, Cal., will by Mary H. Spires, $25,000.

Y. M. C. A., Monroe, Mich., gift by David Reed, $5000.

Y. M. C. A., New York, gift by Mrs. R. M. Smith, $500,000; gift by Mrs. A. M. Smitt, $500,000.

Y. M. C. A., Pawtucket, R I., gift by Mrs. Smith Grant, $50,000.

Y. M. C. A., Pottstown, Pa., gift by John Meig, $50,000.

Y. M. C. A., St. Louis, Mo., gift by various donors, $35,000.

Y. M. C. A., San Francisco, Cal., gift by John C. Coleman, $25,000.

Y. M. C. A., San Jose, Cal., gift by various donors, $141,000.

Y. M. C. A., Worcester, Mass., gift by Mrs. M. P. Higgins, $5000.

Y. M. C. A. and Y. W. C. A., New York, gift by J. D. Archbold, $20,000; gift by Mrs. J. D. Archbold, $5000; gift by C. H. Dodge, $250,000; gift by Grace Dodge, $250,000; gift by Mrs. J. W. Gates, $25,000; gift by H. M. McCormick, $25,000; gift by Mr. and Mrs. C. H. McCormick, $25,000; gift by Joseph Milbank, $10,000; gift by New York Telephone Company, $25,000; gift by J. D. Rockefeller, $450,000; gift by J. D. Rockefeller, Jr., $25,000; gift by Mrs. J. D. Rockefeller, $25,000; gift by Julius Rosenwald, $50,000; gift by Mr. and Mrs. Jacob H. Schiff, $60,000; gift by Mrs. W. D. Straight, $300,000; gift by various donors, $2,566,000.

York, Pa., will for Woman's Home by Anna L. Gardiner, $400,000.

Y. W. C. A., Chicago, gift by R. T. Crane estate, $10,000.

Y. W. C. A., New Britain, Conn., gift by various donors, $76,000.

Y. W. C. A., Philadelphia, Pa., gift by Mrs. E. T. Stotesbury, $50,000; gift by various donors, $500,000.

GILLESPIE, George Lewis. An American major-general, died September 27, 1913. Born in Kingston, Tenn., in 1841, and graduated from the United States Military Academy in 1862, he saw active service in the Civil War, and in 1864 was brevetted major for gallant services. He was made lieutenant-colonel in 1865. In the latter year he was appointed chief engineer of the Army of Shenandoah. In 1885 he was president of the Mississippi River commission. During the war with Spain he was assigned to the command of the Department of the East for the defense of the Atlantic Coast. In 1898 he was made brigadier-general of volunteers, and in 1901 brigadier-general of engineers, U. S. A. He was promoted to major-general and retired in January, 1904.

GILLOTT, SIR SAMUEL. An Australian public official, died June 29, 1913. He was born in 1838 in Sheffield, England. At the age of seventeen he removed to Melbourne where, after graduating from Melbourne University, he began the study of law. He built up a successful practice, and also took an active part in political life of Victoria. He was chief secretary of the state of Victoria, and was at one time its attorney-general. He also sat as a member for Melbourne East and the Victorian Parliament.

GIN. See LIQUORS.

GINN, EDWIN. See ARBITRATION, INTERNATIONAL.

GLADSTONE DOCK. See DOCKS AND HARBORS.

GOETHALS, COL. G. W. See PANAMA CANAL, *passim*.

GOETHE LITERATURE. See GERMAN LITERATURE.

GOFF, NATHAN. United States senator (Republican) from West Virginia. He was born at Clarksburg, Va. (now West Virginia), in 1843, and was educated at the Northwestern Virginia Academy, Georgetown College, and the University of the City of New York. In 1865 he was admitted to the bar. Two years later he was elected a member of the West Virginia legislature. In 1868 he was appointed United States attorney for the district of West Virginia, to which position he was reappointed in 1872, 1876, and 1880. In 1881 he resigned this position on his appointment as Secretary of the Navy by President Hayes. In March, 1881, he was reappointed district attorney for West Virginia by President Garfield. He was the candidate of the Republican party for governor of the State in 1876, and was defeated. He was elected to the 48th, 49th, and 50th Congresses. In 1888 he was candidate for governor and on the face of the returns was elected. The legislature, which was Democratic, however, seated his opponent. He was appointed United States circuit judge in 1892. For the details of his election to the Senate on February 21, 1913, see WEST VIRGINIA. His term expires 1919.

GOLD. The production of gold in the United States from domestic ores in 1912 was 4,520,717 fine ounces, valued at $93,451,500. This was a decrease of $4,174,324 from the production of 1911. The principal gold-producing States in 1912 rank as follows: California, Colorado, Alaska, Nevada, South Dakota, Utah, Arizona, Montana, and Idaho. This was the same relative rank as in 1911, except that a small increase in Alaska and a large decrease in Nevada caused them to change places in order of rank, and a current corresponding increase in Arizona and a decrease in Montana, caused them to change places in 1912 also. No other State beside the nine mentioned has ever produced over $1,000,000 in gold since 1910. The most notable increases in gold in 1912 were $451,496 in South Dakota, $377,923 in Philippines, $331,707 in Arizona, and $292,625 in Alaska. The heaviest decreases were $4,737,217 in Nevada, $431,147 in Utah, and $413,413 in Colorado.

Of the total production in 1912, $23,019,633 were taken from placer mines, compared with $23,415,168 taken from these sources in 1911. The chief placer production is in Alaska, where in 1912 it was $11,990,000, compared with $12,540,000 in 1911. In California the placer production in 1912 was $8,645,663, compared with $8,986,527 in 1911. In 1912 dredging supplied $11,218,804, compared with $10,311,589 in 1911. Of the total, California produced $7,429,955 in 1912, against $7,666,261 in 1911.

At the end of 1913 the director of the United States mint estimates the production of gold in the world during the year at $455,000,000, or approximately $11,000,000 less than in 1912. The United States fell off $5,000,000, chiefly in Alaska and Nevada. The Transvaal, which fell $5,000,000 behind its record of 1912, but for the miners' strike in June would have shown a moderate increase. Australasia lost $1,000,000, which was a continuation of a decline that had been going on for several years. Mexico's production fell off about $5,000,000, due to the war. On the other hand Canada gained about $2,700,000 and British India $1,000,000, and there were smaller gains elsewhere. The mint bureau's final estimate upon the production of gold in 1912 was $466,000,000.

WORLD'S PRODUCTION OF GOLD, CALENDAR YEAR 1912

Countries	Value
North America:	
United States	$ 93,451,500
Canada	12,648,800
Mexico	24,500,000
Africa:	
Transvaal	188,293,100
West Coast	7,286,000
French Colonies	2,044,600
Rhodesia	14,226,900
Australasia	54,509,400
Europe:	
Austria-Hungary	2,043,200
France	1,812,100
Germany	78,100
Great Britain	27,800
Italy	11,000
Portugal	2,300
Russia	22,199,000
Servia	251,100
Sweden	20,300
Turkey	500
South America:	
Argentina	107,300
Bolivia and Chile	175,000
Brazil	3,570,600
Colombia	2,971,700
Ecuador	406,500
Peru	492,200
Uruguay	111,000
Venezuela	623,500
Guiana, British	879,800
" Dutch	407,300
" French	3,050,600
Central America	3,030,400
Asia:	
British India	11,055,700
China	3,658,900
East Indies, British	1,352,000
" " Dutch	3,387,100
Indo-China	74,700
Japan	4,467,000
Corea	2,852,600
Siam	56,500
Total	$466,136,100

The gold output in 1913, according to the estimate of the Bureau of the Mint and the Geological Survey, as is shown in the table below, was smaller than in 1912. The decrease is to be ascribed mainly to the declines in the output of Alaska, Nevada, South Dakota, and Utah.

Gold Production in the United States
(Value)

	1912	1913	Changes
Alabama	$ 16,400	$ 8,062	D. 8,338
Alaska	17,198,600	14,783,512	D. 2,415,088
Arizona	3,785,400	3,803,039	I. 17,639
California	20,008,000	20,105,447	I. 97,447
Colorado	18,741,200	18,420,031	D. 321,169
Georgia	10,900	9,881	D. 1,019
Idaho	1,401,700	1,366,605	D. 35,095
Maryland	1,200	....	D. 1,200
Montana	3,707,900	3,078,202	D. 629,698
Nevada	13,575,700	12,279,131	D. 1,296,569
New Mexico	754,600	844,086	I. 89,486
North Carolina	156,000	111,442	D. 44,558
Oregon	759,700	1,370,987	I. 611,287
South Carolina	15,400	1,985	D. 13,415
South Dakota	7,823,700	7,197,498	D. 626,202
Tennessee	11,500	7,711	D. 3,789
Texas	2,200	120	D. 2,080
Utah	4,312,600	3,400,103	D. 912,497
Virginia	300	3,514	I. 3,214
Washington	682,600	692,021	I. 9,421
Wyoming	24,300	30,491	I. 6,191
Continental U. S.	$92,989,900	$87,512,868	D. $5,477,032
Porto Rico	....	1,116	I. 1,116
Philippines	461,600	787,039	I. 325,439
Total	$93,451,500	$88,301,023	D. $5,150,477

In Alaska the net decrease of nearly $2,500,000 was due in part to the exceptionally dry summer of 1913. In Nevada the gold output declined about 10 per cent., or over $1,300,000. In South Dakota the production of gold declined nearly $700,000, from the record yielded in 1912. The falling off in Utah was over $675,000. California retains first rank in the gold output, followed in order by Colorado, Alaska, Nevada, South Dakota, and Utah.

Imports and Exports. According to the estimates of the Bureau of Foreign and Domestic Commerce, gold imports in 1913 comprised gold valued at $63,961,609, and the gold exported was valued at $88,601,200. The gold imported was mainly in the form of ore and bullion, and the exported consisted chiefly of refined bullion and coin.

See also Metallurgy.

GOLD COAST, The. A British crown colony (24,200 square miles) and protectorate (Ashanti, 20,000 square miles; the Northern Territories, 35,800) on the gulf of Guinea. Population figures (census 1911) are believed to underrate the number of inhabitants, being placed at 853,766 for the colony, 287,814 for Ashanti, 361,806 for the Northern Territories. Capital, Accra (19,585 inhabitants). The gold and gold-dust export in 1911 was valued at £1,071,616. Improvement of railway and other means of transportation, coupled with the passing in 1900 of the concessions ordinance, has done much to develop the mining industry. Cacao export, £1,613,468 (1910, £866,571; 1900, £27,280). Palm kernels, £175,891; palm oil, £128,916. Transportation of large quantities of oil would seem to offer some difficulties in those regions not near a railway; the problem is solved by packing it in casks and rolling it to the Volta (the principal river, navigable to Akuse) or to the nearest seaport. Kola nuts, £93,099. A growing industry is the cultivation of rubber (£219,447). The government has planted 15,000 trees and is endeavoring to promote a less wasteful method of gathering than that prevailing among the natives. Timber (£138,821) is of importance. The total imports and exports (1911) were valued at £3,784,260 (£2,842,895 to the United Kingdom) and £3,792,454 (£2,453,629 to United Kingdom), respectively. There is a railway from Seccondee to Kumasi, a branch line from Brumasi to Prestea, and a line between Accra and Akwapim in operation as far as Pakro. Revenue and expenditure amounted in 1911 to £1,111,632 and £914,501 respectively (£1,006,633 and £924,862 in 1910). Tonnage entered and cleared in 1911, 2,676,440; of which 1,557,686 tons. British governor in 1913, Sir H. C. Clifford (appointed 1912).

GOLDMAN, Edwin. An English surgeon and educator, died August 13, 1913. He was born in Burgersdorp, Cape Colony, in 1862; educated at Burgersdorp, and at Breslau and Freiburg universities. For eleven years he was assistant at the University Hospital in Freiburg. He made a special study of cancer. He became in 1892 a professor of surgery at the University at Freiburg. He was an associate in an institute for experimental therapeutics conducted at Frankfort-on-Main by Professor Ehrlich. He contributed many articles to medical journals on subjects relating to cancer and other malignant growths.

GOLF. Francis J. Ouimet, by winning the national open championship at Brookline, Mass., stamped himself as the golfing marvel of 1913. Ouimet had played a steady game for several seasons, but had never shown any special brilliancy. His defeat of such splendid players as Harry Vardon and Edward Ray, the British professionals, therefore came as a great surprise to golf followers. Ouimet's score was 72, Vardon's 77, and Ray's 78 in the round to decide a triple tie of 304. Jerome D. Travers captured the amateur title for the fourth time in his career by defeating J. G. Anderson 5 up and 4 to play. Mrs. Gladys Ravenscroft of England won the American women's championship, defeating Miss Marion Hollis of Westbrook in the final round, 2 up.

The English open championship was won by J. H. Taylor who made the 72 holes in 304 strokes. Edward Ray, the 1912 champion, was second with 312, and Harry Vardon and M. Moran tied for third with 313. The English amateur championship was captured by H. H. Hilton, who defeated R. Harris 6 up and 5 to play. The English women's championship was won by Miss Muriel Dodd who defeated Miss Chubb 3 up and 2 to play. The French open championship went to George Duncan and the amateur title to Lord Charles Hope.

The American team championship of the Intercollegiate Golf Association was won for the sixth year in succession by Yale, which defeated Williams in the finals by 6 matches to 3. The individual winner was Nathaniel Wheeler of Yale who was the victor over John Marshall, Jr., of Williams, 3 up and 2 to play. In dual college matches Yale defeated Princeton and Cornell, Princeton defeated Cornell; Williams defeated Princeton and Cornell, and Dartmouth defeated Williams. The western intercollegiate championship was won by Chicago, with Illinois second.

GOODWIN, Forrest. Representative in Congress from Maine, died May 28, 1913. He was born in Skowhegan, in 1862; graduated from Colby College in 1887; studied law at Boston University Law School, graduating in 1890; and then engaged in the practice of law. He was a member of the Maine House of Representatives in 1899; was elected to the Maine Senate in 1903, serving as president of that body in 1905; and was elected to the 63rd Congress in September, 1912.

GORELL, John Barnes, first baron. An English jurist, died April 22, 1913. He was born in 1848 and was educated at Peterhouse College, Cambridge. He became a barrister in 1876; Queen's Counsel in 1888; and a bencher of the Inner Temple in 1896. From 1892-1905 he was judge of the Probate Divorce and Admiralty Division of the High Court of Justice, and president of this court from 1905-08. He was created First Baron Gorell of Brampton in 1909.

GORKY, Maxim. See Russia, *History*.

GOTCH, Francis. An English physiologist, died July 14, 1913. He was born in Liverpool in 1853; educated at Cambridge; and in 1883 was appointed demonstrator of physiology at Oxford University. He became professor of physiology at Liverpool in 1891, where he remained until appointed Waynflete professor at Oxford in 1895. This chair he held until his death. During this period he carried on many investigations, in particular concerning the excitable tissues of the muscles and nerves. In 1892 he was elected a fellow of the Royal Society. He published many papers on the physiology of nerves and muscles.

GOVERNMENT. See section so entitled under various countries.

GOVERNORS' CONFERENCE. The sixth annual meeting of the governors of the States, the so-called "House of Governors," met in Colorado Springs on August 26, 1913. The chief question discussed related to conservation and good roads. The conference was opened with addresses by Governor Ammon of Colorado, and Mr. Lane, Secretary of the Interior. Reports were read by the commission of rural credits and the Lincoln highway. Governor Baldwin of Connecticut delivered an address on the expenses of candidates, and Governor Lister of Washington spoke on the State department of efficiency. There was a discussion of State legislatures by Governors O'Neal of Alabama, and Hodges of Kansas. The session closed on August 30. The meeting of 1914 will be held in Madison, Wis.

GRAPES. See Horticulture, *passim*.

GRAPHITE. The greater part of the graphite consumed in the United States was derived from foreign deposits. The total domestic production in 1912 was 2445 short tons of natural graphite, valued at $207,033, and 6448 short tons of manufactured graphite, valued at $830,193. In 1912 as in 1911 the total production of crystalline graphite came from Alabama, New York, and Pennsylvania. The production of this graphite has decreased continuously since 1909. Its decrease resulted mainly from the closing of numerous graphite properties. The destruction by fire of the mill of the Allen Graphite Company of Quenelda, Ala., was the cause of part of the decrease in 1912. Amorphous graphite was produced during 1912 in small quantities in Michigan, Nevada and Wisconsin. Nevada and Wisconsin products are very small. In the fiscal year 1913, the imports of graphite into the United States amounted to 26,222 short tons, valued at $1,972,177. Of this quantity the greater part came from Ceylon. Other countries sending considerable amounts were Mexico, Canada, and Korea.

GREAT BRITAIN. The United Kingdom of Great Britain and Ireland. A constitutional monarchy. Capital, London. Great Britain proper is England, Scotland, and Wales.

Area and Population. The area of the United Kingdom, including inland water, is stated at 121,105 square miles. Attached to the United Kingdom, but not forming a political part thereof, are the Isle of Man and the Channel Islands, with an aggregate area of 302 square miles. The United Kingdom and these islands together constitute the British Isles, with an area of 121,407 square miles. England and Wales comprise 58,340 square miles; or in land area alone, 58,029 square miles; Scotland, 30,405 square miles, or in land area 29,782. By divisions, the area, the population according to the censuses of April 1, 1901, and April 3, 1911, are shown in the following table:

	Sq. m.	Pop. 1901	Pop. 1911	Dens.
England	50,874	30,813,043	34,045,290	669
Wales	7,466	1,714,800	2,025,202	271
Scotland	30,405	4,472,103	4,760,904	156
Ireland	32,360	4,458,775	4,390,219	136
U. Kingdom	121,105	41,458,721	45,221,615	373
Isle of Man	227	54,752	52,016	229
Channel Islands	75	95,618	96,899	1,292
British Isles	121,407	41,609,091	45,370,530	374

The population figures represent persons present; no census of the population resident is taken in the United Kingdom, and therefore the figures above do not include British soldiers, sailors, and merchant seamen abroad.

As estimated for June 30, 1912, the population of the United Kingdom was 45,662,646; June 30, 1913, 46,035.570. Increase of population (decrease in Ireland since 1841) has been as follows, according to census returns:

	E. & W.	Scotland	Ireland	U. K.
1801	8,892,536	1,608,420	....	....
1811	10,164,256	1,805,864	....	....
1821	12,000,236	2,091,521	6,801,827	20,893,584
1841	15,914,148	2,620,184	8,175,124	26,709,456
1861	20,066,224	3,062,294	5,798,967	28,927,485
1881	25,974,439	3,735,573	5,174,836	34,884,848
1891	29,002,525	4,025,647	4,704,750	37,732,922
1901	32,527,843	4,472,103	4,458,775	41,458,721
1911	36,070,492	4,760,904	4,390,219	45,221,615

The percentage of population in the several divisions and the percentage of increase from 1891 to 1901 and from 1901 to 1911 are shown below:

	1841	1891	1901	1911	'91-'01	'01-'11
England	56.1	72.8	74.8	75.3	12.1	10.5
Wales	3.4	4.0	4.1	4.5	13.3	18.1
Scotland	9.8	10.7	10.8	10.5	11.1	6.5
Ireland	30.7	12.5	10.8	9.7	*5.2	*1.6

* Decrease.

The population in the Isle of Man and the Channel Islands is almost stationary. It was 148,915 in 1911, as compared with 150,370 in 1901, 147,842 in 1891, and 143,126 in 1851.

In 1911, the number of males and females were, respectively: England, 16,421,298 and 17,623,992 (or 1073 females to 1000 males); Wales, 1,024,310 and 1,000,892 (997 females to 1000 males); Scotland, 2,308,839 and 2,452,065 (1062 females to 1000 males); Ireland, 2,192,048 and 2,198,171 (1003 females to 1000 males).

In England and Wales, the percentage of population in urban districts in 1911 was 78.1, as compared with 77.0 in 1901, 72.0 in 1891, and approximately 50.2 in 1851. In Scotland, the burghal population in 1911 was 66 per cent. of the total, as compared with 58.5 per cent. in 1901. A large part of the total population increase was in the suburbs of Glasgow. The population of the City of London (675 acres) in 1901 was 26,923 and in 1911 19,658; administrative county of London (74,816 acres), 4,536,267 and 4,521,685. "Greater London" consists of the City of London and Metropolitan police districts, or the administrative county of London and a wide belt of suburban towns and districts known as the "outer ring"; the outer ring had in 1901 2,045,135 inhabitants and in 1911 2,729,673; Greater London 6,581,402 and 7,251,358. The area of Greater London in 1911 was 443,424 acres, or 693 square miles. On June 30, 1913, the estimated population of the administrative county of London was 4,518,191 and of Greater London 7,411,885.

The population of the larger cities (after London) of England and Wales was returned as follows by the 1911 census: Birmingham, 525,833 (with districts annexed November 9, 1911, 840,202); Liverpool, 746,421; Manchester, 714,333; Sheffield, 454,632 (with area annexed April 1, 1912, 459,916); Leeds, 445,500; Bristol, 357,048; West Ham (in the outer ring), 289,030; Bradford, 288,458; Kingston-upon-Hull, 277,991; Newcastle-upon-Tyne, 266,603; Nottingham, 259,904; Stoke-on-Trent, 234,534; Salford, 231,357; Portsmouth, 231,141; Leicester, 227,222; Cardiff (in Wales), 182,259; Bolton, 180,851; Croydon (in the outer ring), 169,551; Willesden (in the outer ring), 154,214; Rhondda (in Wales), 152,781; Sunderland, 151,159; Oldham, 147,483.

In Scotland the population of the larger burghs was as follows, according to the 1911 census: Glasgow, 784,496; Edinburgh, 320,318; Dundee, 165,004 (in 1913, Broughty Ferry, which had 11,058 inhabitants in 1911, was annexed to Dundee); Aberdeen, 163,891; Govan, 89,605; Paisley, 84,455; Leith, 80,488; Greenock, 75,140; Partick, 66,849; Coatbridge, 43,286; Motherwell, 40,380; Kirkcaldy, 39,601; Hamilton, 38,644; Clydebank, 37,548; Perth, 35,854; Kilmarnock, 34,728; Falkirk, 33,574; Ayr, 32,986.

The larger cities in Ireland, with population according to the preliminary returns of the 1911 census, are: Dublin, 309,272 (with suburbs 403,030); Belfast, 385,492; Cork, 76,632; Londonderry, 40,799; Limerick, 38,403; Waterford, 27,430.

The following table shows the rate, per thousand of population, of births, deaths, and marriages, that is, persons married:

		E. & W.	Scot.	Ire.	U. K.
Births	1902	28.5	29.3	23.0	28.0
"	1907	26.5	27.7	23.2	26.3
"	1911	24.4	25.6	23.2	24.4
"	1912	23.8	25.9	23.0	24.0
Deaths	1902	16.3	17.3	17.5	16.5
"	1907	15.1	16.6	17.6	15.5
"	1911	14.6	15.1	16.5	14.8
"	1912	13.3	15.3	16.5	13.8
Marriages	1902	15.9	14.2	10.4	15.1
"	1907	15.9	14.3	10.3	15.2
"	1911	15.2	13.4	10.7	14.6
"	1912	15.5	13.7	10.6	14.8

The number of passengers that arrived in or left the United Kingdom (exclusive of passengers from or to Europe) is officially reported as follows (the last column of the table shows the number of British passengers from and to the United States):

		British	Aliens	Total	U. S.
Arrivals	1908	172,043	170,879	342,922	65,418
"	1911	192,718	157,711	350,429	72,082
"	1912	199,181	141,515	340,696	71,493
Departures	1908	263,199	123,212	386,411	96,869
"	1911	454,527	168,898	623,425	121,814
"	1912	467,666	189,169	656,835	117,310

PUBLIC EDUCATION. In England and Wales, on July 31, 1912, departments in the ordinary public elementary schools numbered 32,234; accommodations, 6,862,876; teachers, 41,307 men, 122,676 women; pupils enrolled, 3,044,384 boys, 2,992,986 girls; average attendance 88.79 per cent. On the same date, there were 51 higher elementary schools, having accommodations for 14,104, with 464 teachers, 10,806 pupils (average during the year), and an average attendance of 90.1 per cent. For public secondary education, there were on January 31, 1912, 995 schools recognized for grant, having full-time teachers, 5106 men and 4974 women, part-time teachers 3326, and full-time pupils 89,004 boys and 76,613 girls. At evening and similar schools, pupils enrolled in 1912 numbered 784,984; in day technical classes, 11,758; in technical institution courses, 1289; in art classes, 3250; in schools of art, 41,677 (20,359 males and 21,318 females). Teachers are trained at pupil-teacher centres, training classes, and hostels. The public schools here treated are not to be confounded with the many private institutions known as "the public schools."

In Scotland, for the year ended August 31, 1912, there were 3164 public primary schools in receipt of grants, with accommodations for 1,042,703 pupils, 820,171 pupils enrolled, and 733,792 in average attendance; 196 higher grade schools in receipt of grants, with 24,544 pupils enrolled and 24,201 in average attendance; 1152 continuation classes, with 144,815 scholars. Teachers in elementary schools (day and higher grade) numbered 5362 men and 15,096 women. There were 56 secondary schools claiming grant, with 1175 teachers, 20,484 students enrolled (11,956 boys and 8528 girls), and 19,458 in average attendance.

In Ireland, on December 31, 1912, public primary schools in operation numbered 8255, with 13,213 teachers, accommodations for 769,697 pupils, an enrollment of 668,974, and an average attendance of 499,038.

PAUPERISM. The mean number of paupers, and the ratio per thousand of estimated population, relieved on January 1 and on July 1 preceding (exclusive of casual paupers and insane) are reported as follows for England and Wales:

	Indoor		Outdoor		Total *	
	No.	Ratio	No.	Ratio	No.	Ratio
1903......	203,604	6.2	506,029	15.4	709,473	21.5
1908......	237,549	6.8	535,452	15.4	772,346	22.3
1912......	248,035	6.9	403,552	11.2	650,626	18.0
1913......	245,638	6.7	407,018	11.1	652,528	17.9

* Deductions are made from total for paupers who received both indoor and outdoor relief on the same day.

Of the above paupers, the following were able-bodied adults:

1903......	37,561	1.1	61,393	1.9	98,954	3.0
1908......	46,135	1.3	65,040	1.9	111,175	3.2
1912......	50,884	1.4	69,333	1.9	120,217	3.3
1913......	49,957	1.4	......	...	......	...

A number of paupers, especially outdoor paupers, ceased to be dependent on poor relief in 1911 in consequence of the partial removal of the pauper disqualification for old-age pensions.

In parishes in Scotland, the poor of all classes (including lunatic poor) in receipt of relief on January 15, 1912, were 67,581 paupers and 41,658 dependents; on January 15, 1913, 67,757 and 40,535. In unions in Ireland, the number of paupers in receipt of relief at the close of the first week of January, 1912, was 79,636 (of whom 4609 were able-bodied adults receiving indoor relief); at the end of the first week of January, 1913, 78,799 (4312).

Agriculture. The following table shows the total area in acres (including rivers and lakes, but not including foreshore and tidal waters) and the total cultivated area (in the first week of June) in Great Britian, in Ireland, and in the United Kingdom, including the Isle of Man and the Channel Islands:

		Gr. Britain	Ireland	U. K.
Total acres	....	56,804,166	20,734,124	77,724,044
Cultivated	1898....	32,477,031	15,191,818	47,793,140
"	1902....	32,387,959	15,240,135	47,752,744
"	1907....	32,243,447	14,629,593	46,997,546
"	1911....	32,094,658	14,707,808	46,926,500
"	1912....	31,996,024	14,673,778	46,793,747

The area in acres under the principal crops in the first week of June, 1912, is reported as follows (figures for the United Kingdom include those for the Isle of Man and the Channel Islands):

	Gr. Britain	Ireland	U. K.
Corn crops:			
Wheat	1,925,737	44,855	1,971,801
Barley	1,648,201	165,367	1,816,426
Oats	3,029,054	1,046,000	4,096,111
Rye	60,943	7,765	68,779
Beans	285,989	1,421	287,511
Peas	202,319	279	202,742
Total	7,152,243	1,265,687	8,443,370
Green crops:			
Potatoes	612,671	595,184	1,219,583
Turnips and swedes	1,512,535	271,771	1,792,523
Mangold	488,486	81,700	571,451
Cabbage, kohl-rabi, and rape	173,538	41,060	215,346
Vetches or tares...	137,420	2,008	139,748
Other	190,854	30,366	223,474
Total	3,115,504	1,022,089	4,162,125
Hops	34,829	....	34,829
Small fruit.........	85,141	† 15,218	† 100,747
Orchards	246,527	....	....
Rotation grasses *..	3,991,029	2,630,495	‡6,668,701
Permanent grasses.	12,227,452	9,685,358	§20,362,057

* Including clover and sanfoin. † Including Irish orchards. ‡ Of which, 2,908,233 for hay. § Of which, 6,684,945 for hay.

Production of principal crops in imperial bushels, long tons, or hundredweights, and average yield per acre,. in 1912:

	Great Britian		Ireland	
	Production	Per acre	Production	Per acre
In bushels:				
Wheat	55,838,360	29.00	1,563,942	34.87
Barley	51,238,728	31.09	6,968,470	42.14
Oats	109,935,064	36.29	54,865,569	52.45
Beans	7,724,640	27.63	59,405	41.81
Peas	3,916,680	22.55	7,814	28.01
In tons:				
Potatoes	3,179,632	5.19	2,546,710	4.28
Turnips and swedes	20,278,639	13.41	3,783,218	13.92
Mangold	8,836,718	18.09	1,301,048	15.92
Rotation hay...	2,675,208	1.35	1,710,027	1.86
Permanent hay	6,343,423	1.24	3,295,564	2.10
In cwts.:				
Hops	373,438	10.72	....	....

Number of livestock in the first week of June, 1912, and, for the United Kingdom, in 1911 (the figures for horses include only horses used for agriculture. unbroken horses, and brood mares):

	Gr. Brit.	Ireland	*U. K. '12	*U. K. '11
Horses...	1,441,023	544,332	1,994,607	2,033,216
Cattle....	7,026,096	4,848,498	11,914,635	11,866,111
Sheep....	25,057,732	3,828,829	28,967,495	30,479,807
Swine....	2,655,797	1,323,957	3,992,549	4,250,013

* Including Isle of Man and Channel Islands.

Mining and Metals. The following table shows the quantity of coal and metal produced in the United Kingdom, with estimated value at the place of production:

	1901	1906	1911
Coal ......tons	219,046,945	251,067,628	271,891,899
£	102,486,552	91,529,266	110,783,682
Pig iron*..tons	4,091,908	5,040,360	5,020,510
£	12,826,622	17,623,966	16,146,340
Pig iron†..tons	3,836,739	5,143,500	4,505,762
£	12,026,762	17,984,603	14,490,872
Fine copper, t.	532	749	392
£	37,661	69,385	23,461
Metallic lead, t.	20,034	22,335	17,990
£	254,599	392,445	254,259
White tin, tons	4,560	4,522	4,872
£	556,571	819,377	931,917
Zinc ......tons	8,418	8,539	6,098
£	149,174	235,819	153,593
Silver....ounces	174,466	148,341	118,458
£	19,764	19,083	12,123
Bar gold....oz.	6,225	1,871	425
£	22,042	6,569	1,415
Total ......£	128,379,747	128,680,513	142,797,662

* From British ores. † From foreign ores.

Excepting part of the pig iron, the metals named in the foregoing table were produced from British ores. The output of coal in 1912 was 117,921,068 tons.

Fisheries. The value of fish (exclusive of salmon) landed on the coasts of the United Kingdom is reported as follows:

1911	E. & W.	Scotland	Ireland	U. K.
Fish, wet..	£8,051,486	£3,060,574	£315,679	£11,427,739
Shellfish....	273,012	67,355	58,406	398,773
Total.....	8,324,498	3,127,929	374,085	11,826,512
1912				
Fish, wet..	£8,884,347	£3,588,584	£306,786	£12,779,717
Shellfish....	326,534	67,594	60,581	454,709
Total.....	9,210,881	3,656,178	367,367	13,234,426

Value for the United Kingdom of the principal catches in 1912: Herrings, £3.705,476; cod, £1,971,994; haddock. £1,936.489; hake, £617,340; soles, £479,272; whiting, £301,280; turbot, £299,-

934; skates and rays, £277,332; mackerel, £253,608; ling, £155,250.

Commerce. Total imports, imports reëxported, and net imports (that is, imports for home consumption) have been valued as follows (exclusive of specie and bullion, of foreign merchandise transshipped under bond, and of diamonds from the Union of South Africa):

	Total Imports	Reëxports	Net Imports
1902	£528,391,274	£ 65,814,813	£462,576,471
1907	645,807,942	91,942,084	553,865,858
1910	678,257,024	103,761,045	574,495,979
1911	680,157,527	102,759,134	577,398,393
1912	744,640,631	111,737,691	632,902,940

For the same years, the value of diamonds exported from the Union of South Africa to the United Kingdom (not included above) were as follows: 1902, £5,380,390; 1907, £8,828,805; 1910, £8,290,367; 1911, £8,267,044; 1912, £9,089,905.

Imports of gold and silver specie and bullion (not included in above table): 1902, £31,393,345; 1907, £73,072,439; 1910, £71,422,077; 1911, £62,987,500; 1912, £69,467,185.

Total exports, reëxports of foreign and colonial produce, and domestic exports (that is, exports of United Kingdom produce) have been valued as follows (exclusive of specie and bullion and of foreign merchandise transshipped under bond):

	Total Exports	Reëxports	Dom. Exp.
1902	£349,238,779	£ 65,814,813	£283,423,966
1907	517,977,167	91,942,084	426,035,083
1910	534,145,817	103,761,045	430,384,772
1911	556,878,432	102,759,134	454,119,298
1912	598,961,130	111,737,691	487,223,439

For the same years, the exports of gold and silver bullion and specie (not included above) were: 1902, £26,125,206; 1907, £67,786,858; 1910, £64,724,213; 1911, £57,024,077; 1912, £64,871,488.

Total imports of merchandise and domestic exports of merchandise in 1911 and 1912 are shown by classes in the following table:

	Total Imports		Domestic Exports	
	1911	1912	1911	1912
I. Food, Drink, and Tobacco:				
Grain and flour	£ 75,760,943	£ 88,496,284	£ 3,573,905	£ 4,238,880
Meat, including animals for food	49,722,183	49,079,559	1,023,361	1,102,582
Other food and drink	....	....	22,268,918	24,725,379
1. Non-dutiable	73,638,263	77,319,259	....	....
2. Dutiable	59,551,830	59,333,614	....	....
Tobacco	5,284,918	6,359,115	2,171,394	2,618,967
Total	263,958,137	280,587,831	29,037,578	32,685,808
II. Raw Materials and Articles mainly Unmanufactured:				
Coal, coke, and manufactured fuel	29,779	276,516	38,447,354	42,584,454
Iron ore, scrap iron, and steel	5,799,162	6,219,050	452,614	409,335
Other metallic ores	8,859,967	9,059,505	110,965	115,068
Wood and timber	25,862,171	28,357,158	199,068	323,958
Raw cotton	71,155,514	80,238,960	....	....
Wool (including rags, etc.)	36,037,451	36,567,818	3,901,752	4,817,642
Other textile materials	14,611,045	18,578,100	435,699	475,058
Oil seeds, nuts, oils, fats, and gums	35,047,459	37,418,767	4,793,768	4,568,504
Hides and undressed skins	11,106,664	13,690,265	1,685,293	2,027,826
Materials for paper-making	4,749,521	5,566,996	818,580	927,668
Miscellaneous	34,900,038	39,694,431	2,880,437	3,167,940
Total	248,158,861	275,667,566	63,725,530	59,417,453
III. Articles wholly or mainly Manufactured:				
Iron and steel and manufactures thereof	11,133,854	12,961,991	43,730,292	48,597,677
Other metals and manufactures thereof	27,581,244	31,197,428	11,022,536	12,284,471
Cutlery, hardware, implements, and instruments	5,273,043	6,991,329	7,395,084	8,108,878
Electrical goods and apparatus *	1,435,492	1,457,643	2,819,374	4,341,587
Machinery	5,768,662	6,820,683	30,960,678	33,158,015
Ships and boats (new)	64,484	33,654	5,663,115	7,027,162
Mfrs. of wood and timber (incl. furniture)	2,551,897	2,873,828	2,037,272	2,058,818
Yarns and textile fabrics:				
1. Cotton	11,279,717	11,511,622	120,063,355	122,219,939
2. Wool	9,586,856	10,112,331	37,239,197	37,773,504
3. Silk	13,441,249	14,356,280	2,381,528	2,225,739
5. Other materials	7,894,776	8,890,211	13,198,754	14,576,309
Apparel (including boots, shoes, and hats)	5,199,932	6,041,393	13,820,465	15,722,778
Chemicals, drugs, dyes, and colors	11,411,060	12,545,758	20,053,129	21,036,390
Leather and mfrs. (excl. boots and shoes)	12,227,521	14,342,926	4,879,175	5,248,345
Earthenware and glass	4,049,083	4,279,280	4,713,298	4,973,374
Paper and manufactures thereof	6,574,550	7,234,437	3,310,966	3,559,317
Railway carriages and trucks (not of iron), motor cars, cycles, carts, etc.	6,500,046	7,851,343	8,125,047	9,758,210
Miscellaneous	23,583,645	25,964,687	30,809,362	32,357,802
Total	165,557,111	185,466,834	362,222,627	385,028,315
IV. Miscellaneous and Unclassified †	2,483,418	2,918,400	9,133,563	10,091,863
Grand Total	£680,157,527	£744,640,631	£454,119,298	£487,223,439

* Other than machinery and telegraph and telephone wire. † Including parcel-post goods not liable to duty.

In the table of imports and exports by classes, the exports include only domestic merchandise. Reëxports (that is, exports of foreign and colonial merchandise), under the same classification were as follows in 1911 and 1912 respectively: I. Food, drink, and tobacco, £14,311,306 and £15,093,809; II. Raw materials and articles mainly unmanufactured, £59,957,708 and £67,286,032; III. Articles wholly or mainly manufactured, £28,344,970 and £29,189,219; IV. Miscellaneous and unclassified, £145,150 and £168,631; total, £102,759,134 and £111,737,691.

Leading imports not specified in the table were as follows in 1911 and 1912, in thousands of pounds sterling: Wheat, 38,910 and 46,455; sheep wool, 32,978 and 33,235; butter, 24,601 and 24,354; unmanufactured rubber, 18,334 and 21,580; sawn or split fir, 15,147 and 16,463; bacon, 14,463 and 14,456; fresh and refrigerated beef, 11,134 and 13,674; maize, 10,713 and 13,593; refined sugar, 14,353 and 13,371; tea, 12,983 and 13,126; unrefined sugar, 12,233 and 11,778; broad stuffs (silk), 9306 and 9912; fresh and refrigerated mutton, 9576 and 9699; copper (excluding manufactures of), 7840 and 9203; tin (block, etc.), 8739 and 8970; eggs, 7968 and 8395; cheese, 7140 and 7415; undressed leather, 5446 and 6518; oats, 5391 and 6338; iron ore, 5646 and 6028; wheatmeal and flour, 5277 and 5519; dressed leather, 4303 and 4561.

Leading domestic exports not specified in the table were as follows in 1911 and 1912, in thousands of pounds sterling: Cotton piece goods, 90.513 and 91,624 (including white bleached 24,171 and 25,964, gray unbleached 24,355 and 24,618, dyed in the piece 20,479 and 20,052); coal, 36,521 and 40,494; cotton yarn, 15,663 and 16,222; woolen tissues, 13,303 and 14,124; worsted tissues, 9315 and 9029; textile machinery, 6779 and 7043; tin plate, 6843 and 6833; linen piece goods, 5642 and 6121; woolen and worsted yarn, 6477 and 5899; herrings, 4913 and 5114; pig and puddled iron, 3889 and 4674; boots and shoes, 3599 and 4203; sulphate of ammonia, 3820 and 3991; cotton thread for sewing, 3978 and 3910; linen thread, 2200 and 2296.

The following table shows the value of merchandise consigned from and to foreign countries and British possessions, in thousands of pounds sterling; imports for consumption, or net imports, are discriminated from total imports, and domestic exports, or exports of United Kingdom produce, from total exports:

	Total Imports		Net Imports	
	1911	1912	1911	1912
From for. c'tries	508,898	558,627	455,508	503,174
From Br. poss.	171,260	186,013	121,946	129,800
Total	680,158	744,640	*577,398	*632,903

	Total Exports		Dom. Exports	
	1911	1912	1911	1912
To for'gn c'tries	384,937	407,418	295,275	310,181
To Br. possess'n	171,941	191,543	158,844	177,093
Total	556,878	598,961	454,119	487,223

* Reëxports in excess of imports to unknown countries were about £55,000 in 1911 and £71,000 in 1912.

Net imports and domestic exports consigned from and to the principal countries, in thousands of pounds sterling:

	Imports		Exports	
	1911	1912	1911	1912
United States	110,782	123,401	27,519	30,066
Germany	61,278	65,841	39,284	40,368
British India	34,508	40,419	52,246	57,626
France	36,378	40,108	24,283	25,586
Argentina	26,205	39,352	18,602	20,550
Russia	41,680	38,091	13,512	13,738
Canada	23,596	25,694	19,715	23,531
Australia	26,470	23,787	30,881	34,841
Belgium	20,014	22,772	11,373	12,193
Denmark	20,485	21,938	5,478	5,798
Netherlands	18,168	20,846	18,112	14,282
Egypt	16,369	19,608	10,300	9,448
New Zealand	14,548	16,094	9,809	10,390
Spain	12,683	13,557	5,497	6,887
Sweden	11,486	12,740	6,347	7,137
Switzerland	8,175	8,587	3,934	4,035
Italy	6,164	7,425	13,212	14,008
Austria-Hungary	6,518	6,622	4,679	4,943
Norway	5,625	6,270	4,850	5,566
Du. E. Indies	5,041	6,180	5,460	6,123
Straits S'ments*	4,704	5,854	5,016	5,911
Turkey	4,876	5,622	9,463	8,116
U. of S. Africa†	4,883	5,142	20,180	21,421
Chile	3,505	4,124	6,139	6,159
Japan‡	2,884	3,419	11,869	12,229
Rumania	6,553	8,182	2,710	2,933
China	3,020	3,176	12,132	10,780
Peru	2,534	2,841	1,392	1,409
Total, including others	577,398	632,903	454,119	487,223

* Including Federated Malay States. † Imports do not include diamonds. ‡ Including Formosa.

SHIPPING. Total net tonnage entered and cleared, with cargo and in ballast (exclusive of the coasting trade):

Entered	British	Foreign	Total
1902 *	32,182,909	17,287,802	49,470,711
1911	40,777,476	28,387,039	69,164,515
1912 †	44,291,842	31,898,774	76,190,616
Cleared			
1902 *	32,250,174	17,570,500	49,820,674
1911	41,107,978	28,636,848	69,744,826
1912 †	44,374,946	31,891,483	76,266,429

* Exclusive of tonnage for war purposes to and from South Africa. † A large part of the increase in 1912 is due to a change in the mode of recording vessels calling at foreign ports in the course of a voyage from one port in the United Kingdom to another.

In 1912, the steam tonnage entered was 74,214,458, cleared 74,325,361; the total tonnage entered with cargo was 46,348,082; cleared, 62,036,529. Leading foreign tonnage entered, in thousands, in 1911 and 1912 respectively: German, 7012 and 7761; Norwegian, 4751 and 5524; Dutch, 2861 and 3027; Swedish, 2657 and 2991; French, 1733 and 1888; Spanish, 1426 and 1516; Belgian, 1702 and 1488. American tonnage entered in 1911 was 220 thousand and in 1912 798 thousand. In 1911 and 1912, total net tonnage arrived in the coasting trade, 62,508,897 and 61,807,618 (British, 58,247,243 and 57,030,993); departed, 62,096,225 and 61,914,781 (British, 57,905,596 and 57,149,153). Merchant marine of the United Kingdom (including Jersey, Guernsey, and the Isle of Man). December 31, 1912: 12,382 steamers, of 10,992,073 tons net and 18,197,117 gross; 8510 sail, of 902,718 tons net and 982,060 gross; total, 20,892 vessels, of 11,894,791 tons net and 19,179,177 gross, as compared with 21,072 vessels, of 11,698,508 tons net and 18,808,459 gross December 31, 1911. During the year the number of steamers increased 140, and the number of sailing vessels decreased 320.

COMMUNICATIONS. The length of railway line open to traffic in the United Kingdom on December 31, 1912, was 23,441 miles (13,139 double track or more, 10,302 single track), compared with 23,417 miles of line at the end of 1911 and 22,152 at the end of 1902. Length of line in England and Wales open to traffic December 31, 1912, 16,223 miles (10,855 double track or more, 5368 single); Scotland, 3815 (1603 double or more, 2212 single); Ireland, 3403 (681 double or more, 2722 single). Total paid-up capital of railway companies in the United Kingdom December 31, 1912, £1,334,964,000 (£1,324,018,000 December 31, 1911); average rate of dividend or interest, 3.52 per cent. (3.59); gross receipts, £128,553,417

(£127,199,570), of which £110,499,654 in England and Wales, £13,508,391 in Scotland, and £4,545,372 in Ireland; working expenditure, £81,224,343 (£78,617,824), of which £70,499,876 in England and Wales, £7,882,512 in Scotland, and £2,841,955 in Ireland; net receipts, £47,329,074 (£48,581,746); proportion of working expenditure to gross receipts, 63 (62).

During the year the principal railway construction in the United Kingdom was in the development and reconstruction of lines at, or in the neighborhood of, the terminals in the great cities. In London particularly the work was designed to facilitate interchange arrangements and communication between suburb and suburb. For example, the District Railway Company was making extensive alterations at Earl's Court Junction so as to avoid the crossing of trains bound for Hammersmith and Putney on the level and beyond and vice versa, so that 100 trains an hour could be handled at this junction. At the Charing Cross station reconstruction was also in progress to facilitate the interchange with the Charing Cross and Hampstead and Bakerloo lines, while at Cannon Street station reconstruction was also in progress. The Charing Cross and Hampstead Railway was forming a loop under the Thames and the Bakerloo extension to Paddington was open on December 1, this line being in process of extension to Queen's Park station to make an open-air junction with the London and Northwestern. The City and South London Line was being connected by subways with the Charing Cross and Hampstead Railway at Euston, and the Great Northern and City Railway was acquired by the Metropolitan Railway with the result that several important improvements were being undertaken, as well as important reconstruction of the Baker Street junction. The extension of the Central London to the Great Western Railway at Ealing was another link to afford extra facilities to the western suburbs, while the District Railway completed a 5½-mile line to Sutton, with new stations at Merton and Morden. The London and Northwestern opened a new line to High Street, Watford, which involves the widening of the Brondesbury Viaduct and a new double-track tunnel through Primrose Hill, in addition to reconstruction at Euston. During the year the electrification of the suburban system of the London and Southwestern was started and a number of lines were continuing electrification for handling the suburban traffic. Barring the metropolitan district, railway progress was not marked in 1913. Station or terminal improvements were in progress at Birmingham and at Stirling station in Scotland and Letchworth, on the Great Northern. The widening of the Great Central between Wrawley Junction and Brockerby, a distance of 5½ miles involving reconstruction of bridges and stations, made progress, while the Southeastern and Chatham Railway was extending its Dover station. The loop built on the London and Northwestern Railway, northeast of Coventry, was being extended and the list of other smaller extensions and connections included, according to the *London Engineer*, the Swaledale Light Railway, the Elstenham-Thaxted branch of the Great Eastern Railway, the Derwent Valley, the Cuffley and Stevenage, with a long tunnel, the Little Callerton at Newcastle, the Mansfield Railway, the Kirkstead and Little Steeping connecting the Boston and Grimsby, and Boston and Lincoln lines; the Newcastle-Pontland; and the extension of the Southeastern Railway from Margate to Cliftonville.

Length of tramway and light railway line open at the end of 1912, 2642 miles (2597 at end of 1911 and 1484 at end of 1902), of which 2172 in England and Wales, 305 in Scotland, and 165 in Ireland; paid-up capital, £76,062,966; gross receipts, £14,726,068; working expenses, £8,924,420; net receipts, £5,801,648.

Length of state telegraph and telephone lines March 31, 1912, 62,095, exclusive of the lines transferred by the National Telephone Company, figures for which are not available.

Length of state telegraph and telephone lines March 31, 1911, 61,296 miles; March 31, 1912, 62,095, exclusive of the lines transferred during the year by the National Telephone Company, figures for which are not available. The length of wire transferred by the company, however, has been reported, the total length of state telegraph and telephone wire on March 31, 1912, being 2,610,656 miles, compared with 1,239,095 miles March 1, 1911. Postal telegraph offices in 1912, 11,561 (11,451 in 1911); railway, etc., telegraph offices, 2452 (2449); telephones, 701,125 (121,730). Post offices, March 31, 1912, 24,387; letters delivered in the fiscal year ended March 31, 1913, in millions, 3298.3; newspapers and halfpenny packets, 1281.3; post cards, 899.

FINANCE. The unit of value is the pound sterling, worth $4.86656. For years ended March 31, the following table shows budget estimates of revenue, actual receipts into the exchequer, and the excess (+) or deficiency (—) of the actual as compared with the estimated amounts:

	Estimates	Receipts	Difference
1903	£161,894,000	£161,319,071	—£ 574,929
1908	152,835,000	156,537,690	+ 3,702,690
1910	162,590,000	131,696,456	—30,893,544
1911 *	199,791,000	203,850,588	+ 4,059,588
1912	181,621,000	185,090,286	+ 3,469,286
1913	187,189,000	188,801,999	+ 1,612,999

* Including arrears of 1909-10.

For years ended March 31, the following table shows budget and supplementary estimates of expenditure, actual issues out of the exchequer chargeable against revenue, and the surplus (+) or deficit (—) of actual receipts (shown in foregoing table) as compared with actual expenditure:

	Estimates	Issues	Surp. or Def.
1903	£195,138,828	£194,251,081	—£32,932,010
1908	153,444,231	151,812,094	+ 4,725,596
1910	163,171,000	157,944,611	+ 5,606,766
1911	174,129,000	171,995,667	
1912	181,839,000	178,545,100	+ 6,545,186
1913	191,556,000	188,621,930	+ 180,069

In the years ended March 31, 1912 and 1913, revenue (exchequer receipts) was derived as follows: Customs, £33,649,000 and £33,485,000; excise, £38,380,000 and £38,000,000; estate, etc., duties, £25,392,000 and £25,248,000; stamps (exclusive of fee and patent stamps), £9,454,000 and £10,059,000; land tax, £750,000 and £700,000; house duty, £2,130,000 and £2,000,000; property and income tax, £44,804,000 and £44,806,000; land value duties, £481,000 and £455,000 (total from these sources, £155,040,000 and

£154,753,000); post office services (including telegraphs and telephones), £25,700,000 and £29,175,000; crown lands, £530,000 and £530,000; receipts from Suez Canal shares and sundry loans, £1,281,497 and £1,418,900; fee and patent stamps, £1,031,000 and £1.066,000; receipts by civil departments, £1,507,789 and £1,589,099; total, £185,090,286 and £188,801,999.

Expenditure (exchequer issues) chargeable against revenue in the years ended March 31, 1912 and 1913, was as follows:

	1912	1913
I. Consolidated Fund Services:		
National debt services	£24,500,000	£24,500,000
(Interest of funded debt)	(15,202,702)	(15,000,752)
(New sinking fund)	(4,447,706)	(4,620,303)
Road improvement fund, etc	1,709,859	1,172,205
Local taxation accounts, etc	9,636,399	9,653,299
Civil list	470,000	470,000
Annuities and pensions	317,745	320,883
Salaries and allowances	56,572	56,468
Courts of justice	523,000	523,450
Miscellaneous	325,525	321,625
Total	37,539,100	37,017,930
II. Supply Services:		
Army (including ordnance factories)	27,649,000	28,071,000
Navy	42,858,000	44,365,000
Civil services	46,001,000	51,944,000
(Education)	(18,983,000)	(19,531,000)
Customs and excise	2,297,000	2,324,000
Inland revenue	1,654,000	1,876,000
Post-office services	20,547,000	23,024,000
Total	141,006,000	151,604,000
Grand total	178,545,100	188,621,930

In the foregoing table, the figures for interest of funded debt and for new sinking fund are included in national debt services; the figurues for education are included in civil services.

The nominal amount of the funded debt on March 31, 1913, was £593,453,857; estimated capital liability in respect of terminable annuities, £31,519,908; unfunded debt, £36,500,000 (including treasury bills to the amount of £5,000,000, temporarily paid off, but renewable under the revenue act of 1906); total "dead-weight" debt, £661,473,765. As compared with the latter figure, the total dead-weight debt on March 31, 1912, was £674,744,481; in 1908, £711,475,865; in 1903, £770,778,762; in 1900, £628,930,653. In addition to the dead-weight debt there were on March 31, 1913, capital liabilities in respect to sums borrowed under various acts amounting to £54,814,656; the gross debt, therefore, in 1913, was £716,288,421. The year before, on March 31, the gross debt was £724,806,428; in 1908, £762,326,051; in 1903, £798,349,190; in 1900, £638,919,932. The total debt services in the fiscal year 1913 were £24,500,000 (interest of funded debt, £15,000,752, interest of unfunded debt, £1,171,863, terminable annuities, £3,540,175, management of the debt, £166,907, new sinking fund, £4,620,303). The assets on March 31, 1913, were as follows: Estimated market value of Suez Canal shares, £39,015,000; other estimated assets, £3,707,733; exchequer balances at the Bank of England and the Bank of Ireland, £6,329,160; total, £49,051,893.

Army. During the year 1913 there was progress toward realizing the scheme of organization and developing the defense forces of the various colonies. While there was a propaganda in favor of compulsory service, and the president of the National Service League, Lord Roberts, had made speeches in support of such a movement, this was counteracted by the activities of the voluntary service committee, which upheld the present system of recruiting the army. The secretary of state for war, Col. J. E. B. Seely, D. S. O., defined the attitude of the government on this question when he stated, on May 29, 1913, that: "His majesty's government have no intention whatever of adopting a system of compulsory service for fighting units. Far from abandoning the voluntary principles, they intend to foster, encourage, and extend it by every means in their power."

On September 1, 1913, a military aeronautics branch was formed under Brig.-Gen. D. Henderson, C. B., while, during the summer, the army manœuvres were held in the South Midlands. Field Marshal Sir J. D. P. French, G. C. B., chief of the imperial general staff, commanded two armies each of two divisions and army troops, in a campaign against a skeleton enemy under Maj.-Gen. C. Monro, the object being to train the staffs and administrative services in the handling and movement of large units. In these manœuvres detachments of the territorial forces participated. A four-company organization in battalions was provided for the foot guards and the infantry of the line during the year. Late in the year there was an increase in pay and more liberal provision was made for issuing commissions to non-commissioned officers and men rising from the ranks. Military opinion was more favorable towards the territorial force in 1913 than in previous years, despite the fact that the numbers had fallen off from the previous year, but, at the same time, the number of men whose service had expired was diminishing and increased numbers were attending camp or field exercises.

The organization of the British army is in two lines, a regular army, with its reserve and special reserve, and a territorial force constituted out of the yeomanry and the former volunteers The reguluar army, or first line, has as its object the supply of garrisons and field forces for India, Egypt, South Africa, and other foreign districts, and the maintaining of home battalions to supply defense for the troops abroad and to furnish expeditionary forces to be completed to war strength by the reserve, it being the function of the special reserve to make good the wastage of war. The territorial force, or second line, is designed for home defense without obligation to serve abroad, but with the hope that individuals, or units, might volunteer for foreign service at need, and to that end officers and men of this force register in times of peace for "imperial service" in war, there being on October 1, 1912, in addition to several complete organizations, 20.678 officers and men who had so registered and were consequently available for such service.

The number of officers and men on the regimental establishments of the British army, army reserve, special reserve, and territorial force, including all ranks, is shown in the accompanying table on the following page, from the British army estimates for the years 1913-1914.

British Army Establishments and Effectives

	Establishments * 1913-14	Establishments * 1912-13	Effectives Jan. 1, 1913
Regular forces (regimental), home and colonial (including regular establishment of special reserves)	167,868	168,282	161,251
Colonial and native Indian corps	8,765	8,871	8,694
Army reserve	145,000	139,000	141,898
Special reserves (excluding regular establishment)	78,714	89,913	61,048
Militia, U. K.†	.....	.....	636
Militia, reserve division	90	150	94
Militia, Channel Islands	3,166	3,166	‡2,928
Militia, Malta and Bermuda, and Bermuda volunteers	2,894	2,894	2,770
Territorial force	315,438	316,307	265,867
Isle of Man volunteers	126	126	115
Officers' training corps (officers and permanent staff)	1,009	1,008	791
Total home and colonial establishments	728,160	729,717	647,092
Regular forces (regimental) on Indian establishment	75,897	75,886	77,097
Total	799,057	805.603	724,189

* Exclusive of number voted to cover regimental fluctuations. † Forces dying out. ‡ October 1, 1912.

The organization of the British regular army in 1913, considered by arms was as follows: Cavalry, 31 regiments, divided into three household cavalry, seven of dragoon guards, three of dragoons, six of lancers, and twelve of hussars. There were maintained five cavalry depots with a sixth in course of establishment to train the recruits to post and draft for regiments and to take care of matters connected with the reserve and mobilization. The various regiments were also connected in pairs and the regimental establishment consisted of 694 men and 554 horses, plus 83 horses boarded out, a number that was to be increased to 120. The colonial peace establishment was 590 men and 472 horses, while the Indian establishment was 624 men with about 605 horses. The war establishment in the field was for home and colonies, 534 men and 568 horses, and for India, 478 men and 508 horses.

During the year there was a recasting of the field artillery organizations at home due to the return from South Africa of a number of units that had been in colonial service. The result was to increase the peace establishment of the expeditionary force batteries and turn over a part of the ammunition service in time of war to the mechanical transport division of the army service corps. It was decided that the field and howitzer batteries for the expeditionary force should have a peace establishment of 158 men and 75 horses, and by transforming three horse artillery batteries into field batteries and using three batteries from South Africa there would be 15 service batteries at home above the expeditionary force batteries, a number which would be increased to 18 when the remainder of the field artillery in South Africa returned to England. The total number of service batteries and companies at home and abroad is 25 horse, 135 field, 9 mountain, 98 garrison companies, including 12 heavy batteries.

The infantry in the British army consisted of four regiments in the brigade of guards, comprising nine battalions, 67 regiments of infantry of the line, and two rifle regiments with a total of 148 battalions. The normal composition of a line regiment was two battalions, but during the year it was decided to establish four battalions of each regiment and measures were taken to that effect.

Exclusive of the Indian army, there were 85 troops, companies, and other formations of engineers for field bridging, searchlight, railway, survey, and similar duties. A new army signal service was formed, composed of royal engineer wireless and telegraph men, and infantry and cavalry signalers. The Army Service Corps was organized in 80 companies, including 56 for horse transport, 15 for mechanical transport, five supply and four remount companies.

The United Kingdom was divided into six commands designated as follows: I. Aldershot; II. Southern; III. Eastern; IV. Irish; V. Scottish; VI. Northern. The Aldershot command is not territorial, being held in immediate readiness for foreign service, but the others are subdivided into districts for the management of infantry recruiting, recruit depots, mobilization, etc. London forms an independent district apart from commands. Excluding India, the principal commands abroad are Gibràltar, Malta, Egypt, and South Africa, in addition to the supreme command of the inspector-general of over-sea forces, Sir Ian Hamilton, G. C. B., in 1913. The expeditionary force referred to consisted of six divisions, one cavalry division, and technical administrative troops, which would supply a complete army estimated at 5660 officers and 162,000 non-commissioned officers and men, or the largest over-sea army in the world.

The regular establishments showing the number of all ranks, including India, with the corresponding figures for 1912 and 1913, are given in the accompanying table:

The Establishment of the Regular Army Including India

		1913-14	1912-13
Cavalry		20,332	20,470
R. artillery	horse and field	29,310	30,070
	garrison	18.584	18.738
Royal engineers		10,230	10,197
Royal flying corps		1,005	......
Infantry		149,507	149,721
Army service corps		6,463	6,587
Royal army medical corps		4,781	4,951
Colonial and native Indian corps in imperial pay		8,765	8,871
Departmental corps		3,563	3,534
Additional numbers *		1,000	3,800
Total		253,530	256,849

* Voted to cover regimental fluctuations from time to time.

In addition are permanent staff and the territorial force, staff and departments, and miscellaneous establishments.

The British army reserve was divided into three sections, section A consisting of reservists who would join the colors, if required, without a general mobilization, and, therefore, are available for special expeditionary purposes; sections

B and C are the ordinary reserve, including those who had enlisted for short service and had been discharged from their active duties. Section D consisted of men who, after completing the 12 years of their original engagement, re-engaged in the reserve for a further four years. The strength of the army reserve on October 1, 1912, was as follows:

	A	B	D	Total
Cavalry	....	7,453	2,983	10,436
Horse and field artillery	674	13,584	3,882	18,140
Garrison artillery	....	6,629	213	6,842
Engineers	424	4,413	702	5,539
Infantry	4,217	63,092	17,706	85,015
Various	453	11,059	1,593	13,305
Total	5,768	106,230	27,079	139,077

The Territorial Force. During 1913 progress was made with the organization and recruitment of the territorial force, including the various branches and schemes for education and recruitment. This is truly a national movement and its success depends in large measure upon the participation of the general public and the interest of the citizens. The strength, on April 1, 1913, was 9299 officers and 244,510 other ranks. During the 12 months 64 recruits, and 692 men rejoining the previous service, became members of the force and, as only 40,259 men would become time-expired in 1913-1914, as against 114,621 in 1912-1913, an annual recruit contingent of 65,000 was anticipated. In 1912, 61 per cent. of the force attended camp for the full fifteen days and 26 per cent. for the legal minimum of eight days, or other period less than 15 days. The camp attendance of the enrolled members of the force, 88 per cent., elicited favorable commendation from continental officers. The territorial force on October 1, 1912, was as follows:

	Establishment	Strength
Yeomanry	26,111	24,607
Royal horse and field artillery	34,118	29,202
Royal garrison artillery	11,899	9,305
Royal engineers	14,583	12,789
Infantry	202,372	165,300
Army service corps	8,932	7,363
Various	15,283	12,867
	313,298	261,433
Officers of officers' training corps and unattached list available on mobilization.	......	1,037
Total	313,298	262,470

The national service was also being developed in 1913 by securing the registry of men available for military service or other work in connection with the army.

See also Military Progress.

Navy. Number and displacement of warships (including colonial vessels) of 1500 or more tons, and of torpedo craft of 50 or more tons, built and building, December 1, 1913: Dreadnoughts (battleships having a main battery of all big guns, that is, 11 or more inches in calibre): built, 18, of 353,350 tons; building, 14, of 367,500 tons. Predreadnoughts (battleships of about 10,000 or more tons, whose main batteries are of more than one calibre): built, 40, of 589,385 tons; building, none. Coast-defense vessels (smaller battleships and monitors): none built or building. Battle cruisers (armored cruisers having guns of largest calibre in main battery and capable of taking their place in line of battle with the battleships): built, 9, of 187,800 tons; building, 1, of 28,500 tons. Armored cruisers: built, 34, of 406,800 tons. Cruisers (unarmored warships of 1500 or more tons): built, 72, of 371,715 tons; building, 20, of 79,320 tons. Torpedo-boat destroyers: built, 143, of 104,985 tons; building, 44, of 42,865 tons. Torpedo boats: built, 49, of 11,488 tons; building, none. Submarines: built, 72, of 27,188 tons; building, 22, of 20,395 tons. Total tonnage: built, 2,052,711, building, 538,580. Excluded from the foregoing: Ships over 20 years old from date of launch unless reconstructed and rearmed within five years; torpedo craft over 15 years old; transports, colliers, repair ships, torpedo depot ships, and other auxiliaries; vessels not actually begun or ordered although authorized. The United Kingdom is first among the nations in amount of warship tonnage both built and building.

Officers and men in 1913, 145,553, including 3 admirals of the fleet, 12 admirals, 22 vice-admirals, 56 rear-admirals, 683 captains and commanders, and 2414 other line officers.

Dreadnoughts recently added to the British fleet are *King George V.*, commissioned November 16, 1912; *Conqueror*, November 23, 1912; *Centurion*, May 22, 1913; *Audacious*, October 21, 1913; *Ajax*, October 31, 1913. The principal characteristics of the *King George V.* are: Displacement, 24,000 tons; length between perpendiculars, 555 feet; beam, 89 feet; draft, 27.5 feet; designed speed, 21 knots; battery, 10 13.5-inch guns and 24 4-inch guns; torpedo tubes, 3; maximum thickness of armor belt, 12 inches. The battle cruiser *Princess Royal* was commissioned November 14, 1912. The principal characteristics of this ship are: Displacement, 26,350 tons; length between perpendiculars, 660 feet; beam, 88.5 feet; draft, 27.5 feet; designed speed, 29 knots; battery, 8 13.5-inch guns and 16 4-inch guns; torpedo tubes, 2; maximum thickness of armor belt, 9 inches. The battle cruiser *New Zealand* was commissioned November 19, 1912, and the battle cruiser *Queen Mary*, September 4, 1913. The light cruisers *Chatham*, *Southampton*, and *Dublin* were commissioned respectively December 3, 1912, and February 25 and March 11, 1913; the light cruisers *Active* and *Fearless* were commissioned respectively April 2 and October 14, 1913.

The fourteen dreadnoughts under construction in the autumn of 1913 are: The *Iron Duke* (building at Portsmouth), to be completed January, 1914; the *Marlborough* (Devonport), January, 1914; the *Emperor of India* (Barrow), May, 1914; the *Benbow* (Dalmuir), May, 1914 —these ships have each a displacement of 25,000 tons and a main battery of 10 13.5-inch guns, and will use both coal and oil as fuel; the *Queen Elizabeth* (Portsmouth), October, 1914; the *Warspite* (Devonport), October, 1914; the *Valiant* (Clydebank), March, 1915; the *Barham* (Govan), March, 1915—these four ships have each a displacement of 27,500 tons and a main battery of 8 15-inch guns, and will use only oil as fuel; the *Malaya* (Elswick), September, 1915 —this vessel, of the same class as the *Queen Elizabeth*, was offered to the imperial navy by the council of the Federated Malay States in November, 1912; the *Royal Sovereign* (Portsmouth), the *Royal Oak* (Devonport), the *Ramillies* (Dalmuir), the *Revenge* (Barrow), and the *Resolution* (Jarrow), to be completed in January, 1916—these five ships, it is reported, will revert to coal for fuel. The battle cruiser building in 1913 was the *Tiger* (Clydebank), to be completed May, 1914.

See also BATTLESHIPS, *England;* and NAVAL PROGRESS.

GOVERNMENT. The legislative power rests with the Parliament, consisting of the House of Lords and the House of Commons. In 1913 the peers entitled to sit in the House of Lords (including the lords spiritual and temporal and three royal princes) numbered 638. The general election of December, 1910, returned 670 members of the Commons to the second Parliament of George V., which convened January 31, 1911. England has 465 members in the Commons, Wales 30, Scotland 72, and Ireland 103. Party representation in November, 1913, was as follows: Liberals, 264; Laborites, 39; Nationalists, 76; Independent Nationalists, 8; Unionists (opposition), 283; total, 670.

The executive authority is vested in the king, acting through his ministers. The king in 1913 was George V. (born June 3, 1865), who, as second (but only surviving) son, succeeded Edward VII. May 6, 1910. Heir-apparent, Edward, born June 23, 1894, and created Prince of Wales June 23, 1910.

The ministers hold office during the pleasure of the king or while the cabinet possesses a majority in the House of Commons. In 1913, the ministry was that of Mr. Asquith (Liberal), which was formed April 8, 1908. Those of the ministers who constitute the cabinet were as follows at the end of 1913: Prime minister and first lord of the treasury, Herbert Henry Asquith (appointed by the king April, 1908); lord high chancellor, Viscount Haldane (1912); lord president of the council, Viscount Morley of Blackburn (1910); lord privy seal, Marquis of Crewe (1908-11 and from 1912); first lord of the admiralty, Winston Spencer Churchill (1911). Secretaries of state: for home affairs, Reginald McKenna (1911); foreign affairs, Sir Edward Grey (1905); the colonies, Lewis Vernon Harcourt (1910); war, Col. John E. B. Seely (1912); India, Marquis of Crewe (1910). Chancellor of the exchequer, David Lloyd-George (1908); secretary for Scotland, Thomas McKinnon Wood (1912); chief secretary of the lord lieutenant of Ireland, Augustine Birrell (1907); postmaster-general, Herbert Louis Samuel (1910). Presidents of committees of the council: Board of trade, Sydney Charles Buxton (1910); local government board, John Burns (1905); board of agriculture, Walter Runciman (1911); board of education, Joseph Albert Pease (1911). Chancellor of the duchy of Lancaster, Charles Edward Henry Hobhouse (1911); first commissioner of works, Earl Beauchamp (1910); attorney-general, Sir John Allsebrook Simon (1913). There are various other ministers besides the foregoing, but they are not members of the cabinet.

HISTORY

THE GENERAL POLITICAL SITUATION. It is a remarkable circumstance that despite the urgent domestic problems confronting Great Britain, British politics should revolve about Ireland: that the Asquith ministry should be most virulently assailed, not for its attack on the House of Lords, not for its benefactions to labor, not for its projected land reform, but for its simple determination to give Ireland a measure of self-government. The year 1913 exhibited a strange spectacle. With all their love of law and order, the Conservatives condoned and openly supported the revolutionary propaganda of the Ulster Unionists, whose avowed intention was to involve Ireland in a disastrous and bloody civil war rather than accede to the demand which the majority of the Irish people have so persistently and hitherto vainly made for home rule. In the face of threatened bloodshed, the ministry pressed its home rule bill, twice approved by the House of Commons and twice rejected by the Lords. If once more the Commons pass the bill, it will become law under the Parliament act of 1911, and the vexatious Irish problem will be eliminated from British politics. No words could be found adequately to express the Conservative repugnance to the ruthlessness of the majority in the House of Commons. The Liberal-Labor-Nationalist coalition, it seemed, was determined to utilize the Parliament act to the full, and would not be interrupted by demands for a general election. The government's Scottish reform bill had been forced upon the Lords after one rejection; its Welsh Church bill would be passed next session. The Opposition, unable to agree on a tariff policy, or on a definite land policy, or on a solution of the Irish question, contented itself with attacking government measures, denouncing the electoral reform bill as a vote-getting partisan measure, threatening civil war in Ulster, and asking why the House of Lords was not at once reformed. The Unionists found much to criticise in the army and navy. But the most damaging attacks of all were directed at the personal honor rather than at the policies of the ministers. A rumor had gotten abroad that the chancellor of the exchequer and two other members of the government had wrongly speculated in Marconi stocks; and although protracted investigations cleared the ministers of guilt, the Unionist press kept the scandal alive as a most effective weapon against the ministry. Meanwhile no little trouble was being caused by the violent tactics of the militant suffragists and by the outbreak of numerous strikes, of which that led by James Larkin at Dublin was the most notable. A difficult question arose. Should the government arrest James Larkin or Mrs. Pankhurst for inciting to violence, and let Sir Edward Carson, the Ulster Unionist, go free?

THE HOME RULE BILL. The government of Ireland bill, familiarly known as the home rule bill, was introduced by Mr. Asquith on April 11, 1912, and carried through two readings in that year. Of its provisions, fully discussed in the YEAR BOOK of 1912, it is necessary to recall simply that the bill would establish a bicameral Irish legislature with limited powers; that the imperial Parliament, in which Ireland would still be represented, would continue to control foreign relations, foreign commerce, and many other matters; and that provision was made for the imposition of taxes by the Irish Parliament and the gradual reduction of the financial support given Ireland by the imperial government. One important amendment had been incorporated in the bill, namely, the provision that after five years the members of the Irish Senate should be elected by proportional representation. After the Christmas holidays the British House of Commons proceeded to discuss the report stage of the home rule bill. In accordance with the schedule mapped out in the preceding October, the government allotted seven days to this stage, notwithstanding Mr. Bonar Law's contention that the discussion was being unduly abbreviated, and that only 212 of the 1646 lines of the bill had been discussed in committee. On January 1, Sir Edward Carson, the leader of the Ulster Unionist agitators, spoke eloquently and earnestly in favor of an amendment to exclude "the province of Ulster" from the home rule bill. Mr. Asquith and Mr. Churchill saw in the amendment merely an attempt to wreck the whole bill, and the former went on to say that even in the province of Ulster there were seven Roman Catholic home-rulers to every nine Protestants. The Protestant minority might find home rule distasteful, but never oppressive; for every safeguard would be prepared in the interests of the minority. Sir Edward Carson had asked "and has the House now made up its mind . . . to drive them (the Ulster Unionists) out of the constitution under which they are willing to remain, and to compel them to live under a constitution which they abhor, and which is loathsome to them?" In reply, Mr. Redmond (Irish Nationalist), asked, "Will you, if this bill fails, by force coerce the rest of Ireland to continue to live under a system of rule established at the Union, and which they loathe, and ever loathed from that day to this?" The amendment to exclude Ulster was rejected by 294 votes to 197. But in the interest of the Protestants of Ireland, new provinces were added. The properties and privileges of universities (Dublin, Trinity College, Queen's) were not to be diminished without their consent. An amendment to clause 3 made it still more impossible for the Irish Parliament to expropriate Protestant religious bodies. A Liberal amendment to clause 9 on elections to the Irish House of Commons provided that "in any constituency which returns three or more members the elections shall be held on the principal of proportional representation, and each elector shall have one transferable vote." This was expected to give the Unionists two more members. In the debate on the third reading, the question of the coercion or the exclusion of Ulster was again brought up. Mr. Bonar Law believed that Ulster would prefer civil war, or government by "a foreign country" to home rule. The exclusion of Ulster was demanded, not as the basis for a compromise, but as an alternative to bloodshed. The Liberals, however, unwilling to present their Nationalist allies with a "mutilated Ireland," and confident that with their rights properly safeguarded few Ulstermen would rebel against home rule, proceeded to pass the third reading by a vote of 367 to 257 on January 16.

The home rule bill was then presented for the disapproval of the Lords. Its rejection was a foregone conclusion, even before the four nights of debate; nevertheless the government offered to consider "any method by which, without altogether destroying its substance, it can be made less alarming to its most bitter opponents." The bill was rejected on January 30 by a vote of 326 to 69.

Under the Parliament act, the home rule bill must be passed over the veto of the Lords three times in three successive sessions. Mr. Asquith proposed to use this procedure for enacting into law not only the home rule bill, but the Scottish temperance bill and the Welsh disestablishment bill as well, both of which were passed by the Commons before adjournment (February 14) and rejected by the Lords. Consequently all three were reintroduced in the summer session, which began on March 10. At present we shall follow only the home rule bill. The formal first reading took place May 7. In the debate on second reading, Sir Edward Carson declared that "the whole force of the whole Conservative and Unionist party" would support Ulster in armed resistance. He was supported by Mr. Bonar Law, who reproached the government for compelling the whole Unionist party to endorse the attitude of Ulster. By way of reply, the government repeated its offer to adopt any provision for the safety of Ulster's interests, and reproached the Opposition in turn for suggesting no plan by which the Irish problem could be solved. Mr. Redmond, towards the end of the debate, made a clear-cut statement of the Nationalist position: "Ireland to-day is full of hope and expectation. Beware how you dash that hope to the ground. Rebellion is threatened. Rebellion is justified in high quarters. The rebellion of a portion of the population of four counties, because they disapprove of the act of the imperial Parliament before any wrong has been done, and before any oppression has been attempted, would be a crime and a calamity. Rebellion by over three-fourths of the people of a country distracted, tortured, and betrayed, deprived of the rights of freemen, and condemned to a barren policy of coercion, would be too horrible a thing to contemplate; and it is because this is so that I rejoice with all my heart to believe and to know that the future of this bill is safe, and that the future of Ireland is assured." The bill passed second reading in the Commons on June 10 by a majority of 98. In the committee stage there would ordinarily have been numerous obstructionist amendments; but inasmuch as a bill sent up to the House of Lords for a second time under the Parliament act may not be amended, the committee of the whole reported the bill without alteration. It may be noted that it is possible for the Commons to make suggestions which they invite the Lords to incorporate in the bill; in connection with the home rule bill no suggestions were made, and the bill as read a third time on July 17 was unaltered. When it came up before the Lords again, Lord Loreburn urged them carefully to discuss the details of the measure in a spirit of frankness and conciliation; but the Lords refused a second reading to the bill, and on July 15, by 302 votes to 64, adopted Lord Lansdowne's reasoned amendment "that this House declines to proceed with the consideration of the bill until it has been submitted to the judgment of the country."

An appeal to "the judgment of the country" had been demanded again and again by Unionist orators. On January 1, in response to the challenge of Mr. Asquith, Mr. Bonar Law had promised that if the home rule bill were submitted as a clear issue to the judgment of the country, and vindicated, he would "not in any way, shape, or form encourage the resistanec of Ulster." This would not avert civil war, however, and the Unionists freely acknowledged that men who had signed the covenant would not meekly submit to the verdict of the people of Great Britain. In demanding a general election the Opposition was not trying to avert civil war, but in effect asking the government to make sure of the popular decision. Inasmuch as the electors might be influenced by the threats of the covenanters, it was felt that the decision would not be calm or fair. The popular sentiment might be gauged either by a general election or by referendum. In either case the decision, if affirmative, would not mollify Ulster, if negative would not solve the Irish question, and whether affirmative or negative the polling would mean delay and distraction for the ministry. The Unionists frequently and solemnly adjured the government not to coerce Ulster without the express mandate of the nation. But Ulster would not be coerced without the consent of the people; for, as Mr. Churchill explained, there would be a general election before the home rule bill could be put into effect, and should the Conservatives come back in power, they could easily repeal the act or exclude Ulster. Possibly if the Conservatives had felt confident that a majority of the British electorate believed Irish home rule to be wrong, they would have been willing to bide their time, for it was plainly proved that no oppression of Ulster could take place before the next general election. The Liberals had been careful to provide that the home rule bill should not go into effect immediately upon enactment, but upon "the appointed day," so as to afford an opportunity for reversal between the date of enactment and execution. This would make the argument about coercing Ulster without the approval of the people sound highly fallacious: the Ulstermen had now to rearrange their plans. Instead of resisting the establishment of home rule in Ireland, as originally planned, they must needs rise in arms the day the bill should be enacted into law. The Conservatives still talked about forcing home rule on Ulster against the country's will; but the situation had changed. Ulster was no longer opposing home rule: Ulster was now disputing the right of Parliament to pass a law. While protesting allegiance to the United Kingdom, and to the British constitution, Ulster was treasonably plotting againt a government legally established under that constitution. Two explanations were possible. A few Unionists professed to obey the king while fighting the ministry, and some even proposed that the royal veto—unheard of since the days of Queen Anne—should now be used against home rule. Others called the ministry unrepresentative, thereby implying that sovereignty rested in the people, but never questioning the right of the certainly less representative House of Lords to exercise a veto. It was not surprising that the Liberals saw in the whole agitation a covert attack on the Parliament act of 1911. The supremacy of the House of Commons, established in principle, was to be denied in practice; the Irish question was to remain a vexation to British politics and an excuse for upsetting the ministry; and Lloyd-George's land reforms, and Mr. Asquith's designs on the House of Lords, were to be defeated in the name of Ulster.

War or Conference. In September and October there were three ways of looking at the Ulster question. One could join with the Irish Nationalists in the cry "full steam ahead" with the home rule bill; one could shout with the Unionists "exclusion of Ulster," "appeal to the people," or "war"; or one could advocate "home rule by the consent." Of the last, more will be said hereafter. It was the threats that at first attracted chief attention. Mr. Bonar Law warned the government that "blood will be shed as soon as it (the bill) becomes law" (October 29), and advised them to heed the example of James II., whose stubbornness ended in revolution (November 28). Unionist leaders were confident that "some of the greatest generals in the army" would fight for Ulster. And Sir Edward Carson did not confine himself to empty threats. "Ulster volunteers" to the number of 50,000 were enlisted and drilled; Sir George Richardson was appointed commander-in-chief; arms and ammunition were smuggled into Ireland; and subscriptions were taken for a fund of £1,000,000 out of which to indemnify the Ulster volunteers for loss or injury. The standing committee of the Ulster Unionist Council, with Sir Edward Carson as chairman, made arrangements on September 24 for the formation of a provisional government for Ulster. During September and October Sir Edward and others toured Ulster, reviewing the volunteers and making inflammatory speeches. On September 27 eight or ten thousand volunteers were reviewed at Balmoral (Belfast). Every effort was made to goad the Protestants of Ulster to fury. On September 28 a Presbyterian minister fired his audience by the words, "We know that home rule means Rome rule, and Rome rule means persecution." He failed to recollect that hitherto the Catholics of Ireland had been persecuted rather than persecutors, that in the home rule bill Protestantism was strongly safeguarded, that a Protestant Parliament in London would not lightly abandon fellow-religionists to oppression. These latter considerations, it should be noted, induced many Irish Protestants to espouse the cause of home rule.

The arming and drilling of troops in Ulster was a bold manœuvre on the part of the Unionists. For it meant the establishment of a dangerous precedent. Whoever felt his interests injured could henceforth take up arms against the legally constituted government. The Irish Nationalists were not slow to imitate their opponents, and on a larger scale. If the Unionists would fight against home rule, the Nationalists would fight for it. Then, too, there were the suffragists. Miss Pankhurst could now collect an "army" in the slums of London. But gravest of all was the influence on the laboring classes. If their masters could disregard the law with impunity, why could not they also? If Unionists could carry arms, why not trade-unionists? Fortunately, only a few of the trade-union leaders expressed this query. On the part of many Liberals and of many moderate Conservatives, there was a very sincere desire to see the Irish question settled without recourse to coercion, and with as little as possible of partisan rancor. Probably no one voiced the plea for conciliation better than did Lord Loreburn, former Liberal lord chancellor. In a letter to the public, published in the London *Times* on September 11, Lord Loreburn admitted that if the home rule bill should be enacted into law in 1914, as seemed probable, the government might expect "serious rioting in the north of Ireland," especially since the Unionists in England were believed to be ready to "condone if not approve" violence. Whether the insurrection proved serious or not, a forced and unwilling submission on the part of Ulster must breed bad feeling and make "a cordial partnership in self-government between Protestant and Roman Catholic Ireland" well-nigh impossible. On the other hand, should the home rule bill be defeated, the results would be even more disastrous. The situation demanded compromise, conciliation, and the clearing up of misunderstandings. And to this end Lord Loreburn suggested a "conference or direct communication between the leaders" to prepare a compromise acceptable to all. Lord Loreburn's first disappointment came when Sir Edward Carson said, "We are not going into a conference when a conference means not even a compromise but absolute surrender. . . . We do not trust the government, or any movement of the government." To the mind of Mr. John Redmond, Sir Edward's rejection of the offer clearly demonstrated that the Ulster opposition "is implacable, it is irreconcilable, its root is the old spirit of ascendancy, it is simply a brutal and arrogant determination to override the will of Parliament." The possibility of compromise continued to be agitated, however. Mr. Churchill and Sir Edward Grey both seemed to be impressed with the idea. Compromise, however, could only mean the temporary exclusion of Ulster; for Mr. Asquith in an important speech at Ladybank on October 25, laid down three points upon which he would not yield: an Irish Parliament, an executive responsible to it, and "nothing is to be done which will erect a permanent, or an insuperable, bar in the way of Irish unity." It was not likely that the opposition would come to an agreement on these terms, when even the permanent exclusion of Ulster would not satisfy Lord Lansdowne.

WELSH DISESTABLISHMENT. Like the home rule bill, the bill for the disestablishment of the Church of England in Wales was passed twice by the House of Commons, and twice rejected by the Lords. It was first introduced April 23, 1912, and went through committee in January, 1913, on report. In February Mr. McKenna's scheme for the commutation of life interests was adopted; this would give the church £2,000,000 to represent life interests, Mr. McKenna declared. The bill passed third reading in the Commons on February 5, by 347 to 240. In the House of Lords, the bill was condemned "root and branch" by the Archbishop of Canterbury and rejected on February 11, after three days' debate, by a majority of 201. The Welsh Church bill was again introduced in the House of Commons, and passed first reading May 7, second reading June 16, and third reading July 8, by a majority of 103. On July 22 the House of Lords, as with the home rule bill, resolved, "That this House declines to proceed with the consideration of this bill until it has been submitted to the judgment of the country." Should the bill be passed once more by the next session of the Commons, it will become law. Outside of Parliament the disestablishment was condemned in sermons, and a monster mass-meeting in Hyde Park showed the strength of the opposition.

THE SCOTTISH TEMPERANCE ACT. A third measure which the ministry was attempting to pass under the Parliament act was the Scottish temperance bill, extending local option to Scotland. When the Lords received it from the Commons for the first time, they amended it instead of rejecting it. The Commons on February 6 refused to agree to the amendments, for the ministry held them to be "equivalent to a rejection of the principle of the bill, and they (the ministry) were unable to look upon the measure (as amended) as likely really to effect much for temperance in Scotland." Accordingly, the ministry reintroduced the bill in the summer session, and it was passed by the Commons on July 9 by a majority of 118. The Lords were now willing to compromise, and passed the bill on July 31, with the amendments that the bill should come into operation June 1, 1920 instead of 1917, and that boroughs with population under 25,000 should be considered single areas for local option. The amendments were approved by the Commons, August 13, and the bill became law.

THE WORK OF PARLIAMENT. The three measures discussed above were by no means the only business of the parliamentary sessions which lasted from December, 1912, to March 7, 1913 (with an interruption in February), and from March 10 to August 15 (with a recess from May 8 to 27). The session which ended on March 7 enacted a shops act amending the shops act of 1912 in its application to restaurants, restricting the hours of employment to 65 a week and guaranteeing 32 whole week-day holidays and 26 Sunday holidays. More important was the trade-unions bill, read in the House of Commons January 31, passed by the Lords on February 19, and signed by the king, March 7. The act permits trade unions to expend their funds for political purposes, i.e. (1) election expenses, (2) the maintenance of members of Parliament or other incumbents of public offices, (3) the holding of political meetings and distribution of political literature. Before such expenditures may be made, however, a poll must be taken of the members of the union, and a majority of those voting must consent to the principle of political action. Political funds must be kept separate, and any member may refuse to contribute to the political funds, without losing his right to participate in the non-political functions of the trade union. It is interesting to follow the tactics of the opposition to this measure. Although in committee the Conservatives had attempted to amend the trade-unions bill out of existence, on occasion of the third reading in the House of Commons Mr. Bonar Law advised his adherents to accept the bill, and went on to state that the Conservatives were not hostile to trade-unionism but that they considered political activity as incompatible with the true function of trade unions, the securing of better conditions for workmen.

The session of 1913 was opened on March 10. The king's speech reviewed the events of the last three months, commented on the attempts of the British government to keep in close touch and coöperation with the other powers and "to exercise a beneficent influence in hastening the conclusion of the war." In the field of imperial affairs, the state entry into Delhi (December 23) was singled out for mention, as well as the progress in imperial defense. Ministers from Canada and New Zealand had been present in London to discuss the naval situation. "The recent gift of a battleship by the Malay States, the ready consent of the New Zealand government to the retention in the North Sea fleet of the battleship contributed by them, the steady progress toward the establishment of the Australian fleet, and the discussions now proceeding in the Canadian Parliament on matters of defense, testify to the universal desire within the empire, for the maintenance of common safety." These remarks were *à propos* of the

Photo by Paul Thompson, N Y.

SIR EDWARD CARSON
Leader of the Anti-Home Rule Campaign

Photo by Paul Thompson, N.Y.

JOHN REDMOND
Leader of Irish Nationalists

TWO COMMANDING FIGURES IN THE STRUGGLE FOR HOME RULE FOR IRELAND

forthcoming defense estimates. In outlining the legislative programme for the session, the speech was brief. Parliament would be asked to consider: the completion of land purchase in Ireland, the Sudan loan, care of the feeble-minded, further restriction of the industrial employment of children, prevention of plural voting at parliamentary elections, and "the development of a national system of education"—and in addition, of course, the second passage of the home rule, Welsh Church, and Scottish temperance bills.

The progress of the three last-mentioned measures has already been traced. The plural voting bill, which was not passed, will be dealt with separately. It remains to note a number of minor measures enacted before August 15. The army act placed the number of regulars at 185,600, exclusive of the Indian army. A children act prohibited taking children and young persons out of the United Kingdom to sing or to perform for profit, unless under the license of a police magistrate. The purpose of another act was to permit the extension of the polling hours as early as 7 A.M. and as late as 9 P.M. The government of Sudan loan act authorized the government of Sudan with the guarantee of the imperial exchequer to raise loans amounting to £3,000,000, for irrigation and railway construction in the interest of the cotton industry. Better provision for the feeble-minded was assured by the mental deficiency act. The banking laws were amended by a bankruptcy act. The provisional collection of taxes act was designed to facilitate the collection of the income-tax. Hunger-strikes on the part of militant suffragists made it necessary to pass the prisoners act, more descriptively styled the "cat-and-mouse-act," whereby the home secretary was permitted at discretion temporarily to release prisoners whose ill-health rendered their further detention dangerous. The appellate jurisdiction act created two additionals lords of appeal in ordinary, and increased from five to seven the number of colonial judges who may become members of the judicial committee of the Privy Council, with a view to the better representation of the Dominions. Finally, Mr. Lloyd-George's insurance act amendment, passed in August, supplemented and altered the national insurance act of 1911 in a number of details; for instance, section 3 places persons between 65 and 70 in practically the same position as other insured persons; and section 34 makes it an offense, punishable by fine, for an employer to deduct either all or part of his own contribution from the wages of the employe.

THE PLURAL VOTING BILL. One of the most bitterly criticised measures of the Liberal-Labor government was its plural voting bill, read a first time in the House of Commons on April 8, and a second time on May 1. The object of the bill was to penalize voting for members of Parliament in more than one constitutency, thereby making it impossible for a man to vote for a University member and at the same time to exercise his residential franchise, say in London. Some 500,000 voters, mostly Conservatives, would be affected. Quite naturally the Conservatives were much incensed by the measure. They protested that it was a partisan measure, designed simply to increase the Liberal vote. In opposing it, they exhibited a certain inconsistency: some justifying the principle of plural representation, i.e. representation of property and brains, and trying to preserve the plural vote at least in the city of London and in the universities; others admitting the justice of the "one man, one vote" principle, but refusing to approve the present reform unless accompanied by a redistribution of seats. After being read a third time on July 11 in the House of Commons, by a majority of 71, the bill was thrown out by the Lords in one sitting, July 24, on Lord Crewe's resolution "That this House is not prepared to accept a bill which deals only with the question of plural voting and makes no attempt to remove the serious imperfection of the present electoral law," carried by 166 to 42. Lord Lansdowne on this occasion voiced the extreme criticism of the bill which, he asserted, "is an attempt—I would almost say a cynical attempt—to load the electoral dice in their (the government's) favor." The Liberals replied that the present dice were loaded in favor of the Tories, who exercised undue weight not only through the plural vote, but through the House of Lords.

THE GOVERNMENT PROGRAMME. When Parliament was prorogued on August 15, a considerable part of the programme for the next session was already public property. In the first place, the home rule and Welsh Church bills would be passed for the third time under the Parliament act, and placed on the statute-books. These out of the way, the ministry would proceed with reforms of education, of the House of Lords, and of the agrarian system. The educational policy of the government was outlined on July 22 by Mr. J. A. Pease, president of the board of education. Commenting on the present national system of education, he complained that it was neither national nor a system. The reform to be introduced would bring intermediate education within the reach of all who desired it, by requiring the local authorities to do for intermediate education what the act of 1902 compelled them to do for elementary instruction. Every county and county borough council would have to provide for a complete and progressive system within its area. To make this possible, the government would increase the financial support extended to local education authorities, and make grants according to the average attendance of all children in the area, rather than the children in each school. The new system would retain the voluntary schools, at least for the present.

The reform of the House of Lords, delayed by other more pressing problems, must also be dealt with in the coming session. The government had already been reproached for not taking up the matter earlier, and it was felt that further procrastination would be dangerous. Mr. Samuel ably summarized the reasons for accomplishing the reform during the lifetime of the present Parliament: (1) Mr. Asquith had promised it, (2) the Conservatives might return to office and by half-measures postpone a thoroughgoing reform, and (3) the House of Lords should be so constituted as to "be a check not only on a Liberal House of Commons, but on a Tory House of Commons as well."

THE LIBERAL LAND POLICY. More widely discussed than either education or the House of Lords reform was the land policy promulgated by Mr. Lloyd-George. In 1912, it will be remembered, a (rural) land inquiry committee had begun an investigation of (1) wages, hours of labor, housing, and allotments, and (2) conditions of tenure, game, and the acquisition of land. In its report, the committee declared that over 60 per cent. of the ordinary adult agricultural laborers receive less than 18s. a week, and of these 20,000 or more, less than 16s.; minimum-wage legislation was therefore recommended. The provision of gardens and allotments and extension of the number of small holdings was strongly recommended. Complete security of terms must be ensured for the tenant farmer, and to this end land courts should be established in England and Wales with power "to grant security of tenure subject to good farming, to fix fair rents, to decide questions of compensation, and to fix the price payable upon compulsory acquisition land by public bodies."

On the basis of the land inquiry, Mr. Lloyd-George was able to formulate a definite land policy, whose objects, as stated both by Mr. Asquith and by Mr. Lloyd-George, were the betterment of the lot of the rural population and the promotion of agricultural production. The proposals outlined by the chancellor of the exchequer in speeches at Bedford (October 11) and at Swindon (October 22) may be considered in three main divisions, as regards the new ministry of lands, as regards the agricultural laborer, and as regards the farmer. (1) In place of the board of agriculture and fisheries, there is to be a new department of the ministry, the department of lands, with jurisdiction over all questions concerning land in town and in country. Under the minister of lands there will be appointed commissions with power to purchase land required for the multiplication of small holdings, housing reclamation, or afforestation. The value of the land will be fixed by the commissions, and the new domesday book will be pushed to completion in 1915. (2) The agricultural laborer is to be protected by a minimum wage regulation, settled according to locality by the commissioners, and specially providing for the old and infirm. The hours of labor may be restricted by the commissioners. As for housing, the state will build cottages (about 125,000), using the accumulated reserve insurance funds, and rent them, with gardens, at an "economic rent." In addition, small holdings and allotments may be erected by the commissioners, who have the power to compel landlords to sell at a fair price. (3) Farmers are to be protected against damage by game—especially complained of in land inquiry. The commisiosners may uphold farmers who have been given notice to quit for political or religious ("capricious") reasons; and they may revise the rents of small farmers. Large farmers might seem to have been neglected, but they are allowed to appeal to the commissioners if they find themselves unable to pay the minimum wage, or if they have to pay higher rent.

The October speech was concerned with rural problems; the land question as regards urban districts was discussed in later speeches, notably Mr. Lloyd-George's speech at Halloway, November 29. Briefly summarized, his proposals were: (1) to provide a means of securing at a just price whatever urban land is needed for housing; (2) to reduce the rates, which means that the national exchequer will take over "a larger share of certain services," especially of education; (3) to force great ground landlords to bear their just share in taxation: (4) to make a national survey of housing conditions as "the basis of all future operations against slums and overcrowded houses"; (5) to protect the tenant's (shopkeeper's) good will and improvements made by him, so frequently lost when the lease expires.

The policy thus delineated by the chancellor of the exchequer seemed in some points agreeable to the opposition, but far from satisfactory. The Unionist agricultural policy was set forth in a "Blue Pamphlet" by "a group of Unionists," but there was by no means an argument on the subject and far more unanimity was exhibited in tearing the Liberal policy to pieces than in constructing a substitue. In the main, it may be said that the Unionists opposed the fixation of the minimum wage by a central commission and the compulsory purchase scheme; in place thereof they would have fixation of the minimum wage by local boards, and voluntary state-aided land purchase. They agreed that houses should be built, that villagers should have quarter-acre gardens. They would rely more upon local agencies, however, and lay more emphasis on agricultural education, and coöperation. As for the utilization of insurance reserves for cottage construction, the Unionists found it an effective campaign argument; in the Reading bye-election for instance, the *Daily Mail* published the following poster: "Reading electors! Do you want your insurance taxes fooled away on wild-cat country cottage schemes? Out with the government and save your insurance reserve." It may be noted that according to Mr. Lloyd-George, the state was to guarantee the principal and interest of the insurance reserve. "No risk is involved," he said, "unless Tories contemplate bankruptcy of the British Empire under tariff reform."

UNIONISTS AND THE TARIFF. Above and beyond all housing provisions and wage regulation, the Unionists demanded for the benefit of the rural classes a tariff reform which would increase the prosperity of the country. It will be remembered that on November 14, 1912, the first meeting of the "Fused" Unionists caucus regarded "the adoption of tariff reform and imperial preference as specially desirable at this moment in order to encourage British trade and industry; to restore the credit of the country; and to promote the closer union of the mother country with his majesty's dominions beyond the seas." Of imperial preference, preference in food duties would be the most important item; and of food duties, increased prices would be an inevitable result. Fearing that such a result would increase the misery, and incur the emnity of the poorer industrial classes, a large section of the Unionist party began to weaken on the question of "food taxes." On January 10, a memorial signed by 229 prominent Unionists was presented to Mr. Bonar Law, asking him to promise that should a Unionist government be returned to power, food duties would not be imposed until the people had been consulted in another general election. This "two-elections scheme" was consented to by the Unionist leader, and on January 24, at Edinburgh, he said, "If we are returned to power, . . . (1) we shall impose a tariff, a moderate tariff, lower than exists now in any industrial country in the world, on foreign manufactured goods." . . . (2) "We shall also give to the Dominions . . . the largest preference which is possible *without* the imposition of new duties upon food." And (3), after the Dominions had been consulted, tariff food duties would be made the issue of a general election. This temporary abandonment of the food-duty was speedily condemned by the National Farmers' Union (February 26), and the Tariff Reform League insisted that the Unionist party, while it might delay imposing duties on food, must not give up advocating them. The Unionist caucus in November declared in somewhat ambiguous terms in favor of (1) "broadening the basis of taxation; (2) of safeguarding our great industries from unfair competition; (3) of strengthening our position for the purpose of negotiation in foreign markets; and (4) of establishing preferential commercial arrangements with the colonies." This Mr. Bonar Law interpreted as a 10 per cent. duty on manufactured articles, and then again a tariff high on luxuries and low on necessities. In all this, the farmer seemed to be neglected; in "compensation" to them, part of the tariff revenue would be used "in reducing the burdens of agriculture."

The attitude of the Unionist party toward other problems was indicated at the Norwich caucus November 13 and 14. The Unionists desired to "do away with the compulsory system (of national insurance), and return to the old, splendid voluntary system, which worked so well." The Parliament act of 1911 was looked on "as a peril to the constitution"; a strong House of Lords was desirable; and the disputes between the two Houses should be settled by referendum. Naval and military provision was "inadequate."

THE NAVY. The naval estimates presented by Mr. Churchill before the House of Commons on March 26 amounted to £46,309,300, an increase of £1,233,900 over last year. In defending his proposals, Mr. Churchill made two important statements. In the first place, the Dominions would be encouraged to develop naval bases, dockyards, cruisers, and local flotillas, and possibly a flying squadron of the Dominion-contributed ships would be formed. In the second place, he proposed a "naval holiday" of one year in which Germany and Great Britain would call a halt in naval construction, which he branded "a wasteful, purposeless, and futile folly." No naval holiday seemed to be contemplated, however, when Mr. Churchill in July announced that in lieu of the Canadian dreadnoughts (see CANADA), Great Britain would press on with the construction of three dreadnoughts immediately, and during the next twelve months "receive, on the average, a light cruiser every thirty days, and—during the next eighteen months—a super-dreadnought—every forty-five days." The "naval holiday" proposition was revived in October, when Mr. Churchill announced that the German chancellor had stated in the Reichstag that his government awaited definite proposals. Mr. Churchill's answer, as explained in his Manchester speech on October 18, was that, "Next year, apart from the Canadian ships or their equivalent, apart from anything that may be required by new developments in the Mediterranean, we are to lay down four great ships to Germany's two. Now we say . . . to our great neighbor Germany:—'If you will put off beginning your two ships for twelve months from the ordinary date when you would have begun them, we will put off beginning our four ships, in absolute good faith, for exactly the same period.' . . . There would be a saving . . . of nearly six millions to Germany, and of nearly twelve millions to this country, and the relative strength of the two countries would be absolutely unchanged." On November 27 Mr. Asquith made it clear that the ministry as a whole was back of the invitation and earnestly endeavoring to lessen the burden of naval expenditure.

THE MARCONI CASE. It will be remembered that in 1912 rumors were current that certain ministers had corruptly favored the Marconi Wireless Telegraph Company, because its managing director, Mr. Godfrey Isaacs, was a brother of Attorney-General Sir Rufus Isaacs, and that Lloyd-George and other ministers made use of their official knowledge in speculating in Marconi stocks. A select committee of the House of Commons appointed October 11, 1912, and reappointed on March 14, 1913, reported on June 13, 1913, "that the charges made against Sir Rufus Isaacs, Mr. Lloyd-George, and Mr. Herbert Samuel are absolutely untrue, and that the persons responsible for their publication had no reason to believe them to be true. The committee cannot too strongly condemn the publication in such a way of unfounded charges against the honor and integrity of public men." This was the sentiment of the government party, but many of the opposition felt that the ministers had displayed a lamentable want of frankness and of judgment. A Unionist resolution to that effect was proposed in the House of Commons on June 18 and rejected by a party vote of Liberals, Laborites, and Nationalists against Unionists. That a question of honor should be decided by a party vote seemed highly unfortunate; and the affair, although settled, was not forgotten in Unionists campaign speeches.

SUFFRAGISTS AND THE FRANCHISE BILL. The Asquith ministry, divided as it is on the question of woman suffrage, found it difficult to adopt a consistent and justifiable policy towards the propaganda of the militant suffragists. The question came up in Parliament in connection with the Franchise and Registration Bill to which three amendments were offered: (1) Mr. Henderson's, giving women votes on exactly the same terms as men, (2) Mr. Dickinson's, giving a vote to wives residing with their husbands and to women who already possess votes, and (3) Mr. Lyttleton's, enfranchising only those women who already possess local government votes. It was estimated that (1) would affect 11,000,000 women, (2) 6,000,000, and (3) 1,250,000. The speaker of the House ruled that any of these amendments constituted a new bill, and the franchise bill was dropped on January 27. For the future Mr. Asquith promised to give time for discussion to a private member's bill for woman suffrage, in which the ministers would be free to vote either way. The withdrawal of the franchise bill, as later the defeat of Mr. Snowden's suffrage amendment to the home rule bill, and the rejection of Mr. Dickinson's bill to enfranchise women householders, meant renewed outbreaks of militancy. The militant suffragists fired vacant buildings, destroyed railway coaches, burned the mail in pillar-boxes, wrecked golf links and country clubs, and caused disturbances in Parliament. Repeatedly bombs were found in the churches, and church services were interrupted by the demands for the enfranchisement of women. A suffragist was killed in an attempt to interrupt the Derby races. Miss Pankhurst surrounded herself with an "army" of roughs. Against such tactics the government was almost powerless. Suffragists were imprisoned but, by refusing to eat, forced the government to choose between starving them or releasing them. In some cases forcible feeding broke the "hunger strike," but in others it failed. Mr. McKenna, the House secretary, thought he had solved the problem when his prisoners' bill (see above) was passed, allowing him to reincarcerate prisoners who had been released after self-imposed starvation. Under this "cat-and-mouse act," as it was called, Mrs. Pankhurst and other leading suffragists were repeatedly arrested, released, and re-arrested, seemingly without effect upon the militant suffragists who continued to destroy property and denounce the ministry.

OTHER EVENTS. Interesting in the light of Mr. Churchill's declaration that oil will be the fuel of future battleships, were the attempts of British financiers to gain oil concessions, especially in South America. See articles on MEXICO, and on various Central and South American republics.

For a discussion of the Irish transport workers' strike, see STRIKES. The Ambassadors' Conference held at London and the part played by Great Britain in the Balkan war negotiations are treated under TURKEY AND THE BALKAN PEOPLES. The cordialities exchanged between Great Britain, France, and Spain are discussed under SPAIN. For Great Britain's relations to China, see CHINA, *Opium Question; International Loan; Tibet*. See also PERSIA. And see SOCIALISM, *Great Britain*.

GREECE. A constitutional European monarchy, hereditary in the male line of the house of Holstein. It lies between the Ionian and Ægean Seas and was composed in 1913 of twenty-six nomes. Athens is the capital.

AREA AND POPULATION. Previous to the war in the Balkans, the area was given as 64,657 square kilometers, or 24,964 square miles. By the treaty of Bucharest, signed August 6, 1913, Greece was enlarged by the addition of portions of Macedonia, Albania, and a number of Turkish islands to an area estimated (including Crete) at 115,975 square kilometers, carrying a population of close upon 5,000,000. These additions include Epirus, southern Macedonia (including Salonika), and a strip of seaboard in western Thrace extending to Kavala. The annexation of Crete by Greece has not so far received the recognition of the powers. The population of Greece, according to the census of 1907, was 2,631,952. Athens had 167,497 inhabitants; Piræus, 71,505; Patras, 37,724; Corfu, 27,397; Volo, 23,563; Larissa, 18,001; Hermopolis, 17,773. In the new territories are Salonika, 144,200 inhabitants; Seres, 32,000; Candia, (Heraclæon), 25,185; Canea, 24,209; Kavala, 20,000; Yanina, 20,000; Kastoria, 14,000; Veria, 12,000; Niausta, 11,000; Vodina, 11,000; Drama, 11,000; Yanitsa, (Yenije-i-Vardar), 10,000.

EDUCATION, ETC. Primary education is free and nominally compulsory, and is maintained by local taxation aided by state subsidies. State-directed secondary schools exist, but are ill attended, as are also the special schools. The university at Athens attracts largely Turkish subjects.

The Greek Orthodox is the national religion, though entire religious toleration prevails. The patriarch of Constantinople is the nominal head of the church in Greece, but actual authority rests with a Holy Synod composed of the metropolitan of Athens and four archbishops and bishops.

PRODUCTION. The coast regions are elevated, irregular, and deeply indented; the interior is largely mountainous. Efforts are being made by the government to better agricultural conditions. The soil is extremely fertile and produces cereals, olives, figs, almonds, pomegranates, citrous fruits, vines, and currants (the staple crop). So detrimental to the industry has the annual over-production of currants become that large plantations have been uprooted in accordance with a law limiting the output. The 1911 crop was estimated at 325,000,000 lbs. The olive crop is important; output for 1911 was reported at 31,224,000 okes; yield of olive oil, about 20,300,000 gallons. Tobacco is grown. Unofficial estimates report 100,000 horses, 360,000 cattle, 2,900,000 sheep. Sericulture is carried on. The mineral yield in 1910 included iron, 608,349 tons; lead, 185,207; sulphur, 51,531; magnesite, 48,913; zinc, 37,108; manganese iron, 35,594; iron pyrites, 27,557; emery, 8000; chromite, 7000.

COMMERCE. The development of the trade is shown in the following table, values in thousands of drachmas:

	1906	1908	1910	1911	1912
Imports....	144,636	152,635	160,536	172,202	154,067
Exports....	123,526	109,244	144,571	140,903	145,022

The principal articles of trade in 1911 are shown in the table below, values in thousands of drachmas:

Imports	1000 dr.	Exports	1000 dr.
Cereals	46,884	Currants	46,728
Coal	21,296	Tobacco	17,855
Textiles, etc.	20,498	Wine	14,518
Timber	9,926	Arg. lead	8,746
Chem. prods.	8,809	Zinc	5,831
Fish	6,147	Olive oil	5,389
Mins. and metals	4,750	Figs	5,377
Paper	4,548	Olives	4,033
Sugar	4,498	Spirits	3,512
Coffee	3,615	Iron	3,345
Skins	3,472	Raisins	3,117
Cotton	3,226	Hematite	3,111
Animals	3,188	Skins	2,275
Rice	2,612	Valonia	2,259
Iron	2,571	Silk, etc.	2,072
Machinery	2,226	Resins	1,219

Great Britain contributed imports valued at 40,850 thousand francs, and received exports to the value of 33,777 thousand; Russia, 34,449 and 2601; Austria-Hungary, 23,721 and 13,520; Bulgaria, 14,146 and 360; Germany, 13,336 and 16,364; France, 10,438 and 13,733; Turkey, 8931 and 4803; Italy, 6542 and 4012; United States, 4143 and 12,561; Belgium, 3214 and 9340; Netherlands, 4087 and 11,235; Rumania, 2905 and 890; Egypt, 943 and 11,453; etc. There entered at the ports in the 1907 trade 6412 vessels, of 4,812,834 tons; cleared, 6253, of 4,814,549 tons. Through the Corinthian canal (opened to traffic August 6, 1893) there passed, in 1912, 2707 steamers, of 982,396 tons, and 1427 sailing, of 45,364. The merchant marine included, in 1913, 389 steamers, of 433,663 tons, and 788 sailing, of 136,689 tons.

COMMUNICATIONS. Previous to the outbreak of the war there were, besides 1609 kilometers of railway, several lines under construction. In

Photo by Paul Thompson, N. Y.

PRINCE WILLIAM OF WIED
Prince of Albania, 1913. (See Albania)

Courtesy of *Review of Reviews*

KING CONSTANTINE I
Ascended throne March 18, 1913

Courtesy of *Review of Reviews*

ELEUTHERIOS K. VENEZELOS
Prime Minister of Greece

KING GEORGE I
Assassinated March 18, 1913

GREECE

January, 1913, it was decided to push forward new construction as rapidly as possible in order to complete the long-desired land connection with the rest of Europe. There were (1911) 8155 kilometers of telegraph lines and 15,580 of wires; stations, 745; wireless stations, 18. Post offices, 1278. There were 1750 kilometers of urban (wires 5902) telephone lines and 1375 kilometers of interurban wires.

ARMY. Like other armies of the Balkan states, the army of Greece underwent important changes in strength and organization during the Balkan wars. It had been trained by French officers under the direction of General Eydoux, and in 1912, previous to the outbreak of hostilities, was organized in four divisions, each consisting of a staff, 3 regiments of infantry, 1 division of machine gun troops, 1 regiment of cavalry, 1 regiment of field artillery, with 8 batteries, 1 division of mountain artillery, 1 battalion of engineers, 1 company of train, 1 company of sanitary troops, with an effective strength of 17,600 men, 1500 mounted men, and 48 guns. This organization was substantially increased and instead of four divisions, as many as ten divisions were found in the troops in the field, although it was stated that neither the oldest, nor the youngest classes of men enrolled, were called out, although many Greeks from abroad returned to serve in the army. The estimate of the military strength actually in the field ran in excess of 110,000 men, to which the army had been raised from a previous peace strength of about 30.000.

A royal decree August, 1913, provided for army reorganization. The new army will be organized in six army corps with headquarters at Larissa, Athens, Janina, Salonika, Seres, and Kozani, and while at first composed of two divisions only later will be increased to three, so that the first organization of 11 divisions later will be increased to 18. Each division will contain 3 infantry regiments, each of 3 battalions, an artillery regiment, a squadron of cavalry, a company of sappers, and the usual departmental troops. There were in 1913 but 33 infantry regiments which would have to be increased to 54, the cavalry would remain at 3 regiments, but the field artillery of 4 regiments was to be raised to 6 regiments each of 6 batteries, and eventually a regiment would be provided for each division. Eighty batteries of new quick-firing guns had been ordered from the Schneider works. The 12 Evzone, or rifle battalions, were not to be increased, but the technical troops were to be greatly augmented. A new law providing for an increased annual contingent of recruits had been framed whereby men would be liable for 36 years' military service, 2 years spent in the active army, 10 years in the first reserve, 9 years in the second reserve, 7 in the territorial army, and 7 in its reserve. Under the new law it was believed that an annual recruit contingent of 25,000, instead of 13,000, would be forthcoming, and at the end of 21 years there would be an army of some 470,000.

NAVY. The contract with the British government for a loan to Greece of British naval officers for instruction and advice in naval affairs expired in April, 1913, and was renewed on new terms. Rear-Admiral Mark E. F. Kerr took the place of Rear-Admiral Tufnell, resigned, with an enlarged staff and executive instead of advisory powers. The mission will undertake the reorganization of the Greek navy, which consisted in July, 1913, of 4 ironclads, 1 modern cruiser, 14 destroyers, 4 corvettes, 13 torpedo boats, and 2 submarines. In January, 1913, the keel was laid at Stettin of the battleship *Salamis*, of 19,500 tons, 23 knots speed, with 8 14-inch and 12 6-inch guns. Personnel, about 4000, conscripts for two years or voluntary enlistment.

GOVERNMENT. The reigning king, Constantine I., succeeded to the throne on the assassination of his father, George I., March 18, 1913. King Constantine was born August 2, 1868, and he married in 1889 Princess Sophia of Prussia, sister of Emperor William II. The heir-apparent is Prince George, born July 19, 1890; he has one brother, Prince Alexander, born August 1, 1893, and two sisters.

After centuries of subjection to the Porte, Greece became an independent kingdom in 1830, following a war lasting from 1821 to 1829. The constitution of 1864 was amended in 1911, and vests the executive power in the king and his (responsible) ministers. The Boulé is the legislative body, whose members are elected for four years by manhood suffrage. The ministry in 1913 was composed as follows: E. Venezelos, premier and minister of war; D. Panas, foreign affairs; K. Raktivan, justice; E. Repoulis, interior; I. D. Tsirimokos, worship and instruction; A. N. Diomidis, finance; N. Stratos, marine; A. Michalacopoulos, national economics.

HISTORY. The chief events of 1913 had to do with the part played by Greece in the Balkan War, and an account of them will be found in the articles TURKEY AND THE BALKAN PEOPLES, and CRETE, *History*. In the midst of the war, King George went to the recently conquered city of Salonika and there on March 18 was assassinated by a partially insane Greek, Alexander Skinas by name. The act aroused great indignation among the Greek people. King George was succeeded by his son, Prince Constantine, who had already become a popular hero by virtue of the victories won under his leadership in the war. In the territorial settlements of the year Greece profited to a greater extent than any of the other Balkan states, to a greater extent even than the most optimistic Greek patriot had foreseen at the beginning of the struggle. By the Treaty of London with Turkey (May 30) and the Treaty of Bucharest (August 10) with Bulgaria and Servia, the Hellenic kingdom acquired all of Thessaly, that part of Epirus which included Janina, and the most valuable maritime districts of Macedonia and Thrace, including such important ports as Salonika and Kawala, as well as full realization of the long cherished ambition to annex Crete. By various arrangements of the great powers it was also made known in December that Greece would be permitted to retain all the Ægean Islands except Imbros and Tenedos and the nine islands occupied by Italy, with the *proviso*, however, that no fortifications should be erected on Chios or Mitylene. Thus, as a general result of the Balkan War, the Greek kingdom was considerably more than doubled in area and population. The consequent accession of prestige brought Greece into rivalry with Italy, particularly as the Greek inhabitants of the islands still occupied by Italy clamored for annexation to Greece, and the Epirotes of Koritza and other districts protested violently against being deprived of Greek citizenship and incorporated, as a concession to Italian and Austro-Hungarian interests, into the new principality of Albania. According to a statement made in the Assembly in December by M. Diomidis, minister of finance, the public cost of the whole war to Greece amounted to 379,485,000 drachmas, of which 292,115,000 were expended on the army and 87,370,000 on the navy. This extraordinary outlay brought the year's expenditure up to 413,500,000 drachmas, with a deficit of 101,000,000 drachmas, which would be met out of the yield of the loan which was being negotiated in Paris. The revenue from the new territories for the year 1913 was estimated at 41,000,000 drachmas. The government faced very difficult problems in establishing orderly, civil administrations for the new territories and in welding them into the Hellenic kingdom. A good beginning had already been made in the last months of 1913: M. Dragoumis was acting as governor-general of Crete, and M. Repoulis, of Macedonia; a project to connect the railway system of Greece with that of Macedonia was being vigorously pushed; and attention was being paid to find land and employment for the some 150,000 Greek refugees from Turkey, Bulgaria, and Albania, who had emigrated into the new territories. The capitulations, which had long obtained under the Turkish régime in Crete and in Macedonia, and in accordance with which foreign subjects were tried in their respective consular courts, were speedily abolished by the Greek government. Plans were elaborated in September for a thorough reorganization of the army and navy: the former would be raised to 400,000 men and would be trained by General Eydoux and his staff of French officers; the latter would be effected by British advisers headed by Rear Admiral Kerr. In August M. Coromilas resigned as foreign minister on account of ill health and was succeeded by M. Panas, who, as Greek minister at Sofia, had played a leading part before the war in the negotiations that led to the formation of the Balkan Alliance. With the bulk of the Greek nation M. Venezelos as prime minister maintained a popularity second only to that of King Constantine, but in the Assembly one or two political groups, especially that headed by the former premier M. Ralli, assailed him as too yielding in his conduct of the final negotiations with Turkey and the powers. These attacks led to dissensions within the cabinet, and on December 3 M. Stratos, minister of marine, resigned and entered the opposition.

GREECE, ARCHÆOLOGY OF. See ARCHÆOLOGY.

GREEN, JOHN. An American oculist, died December 7, 1913. He was born in Worcester, Mass., in 1835, and graduated from Harvard in 1885. He studied medicine at that university and in Europe. In 1862 he was in the medical service of the Western sanitary commission, and in that year and the year following was assistant surgeon of the army of Tennessee and served with the Federal troops in Maryland. In 1866 he removed to St. Louis, where he practiced with great success until his death. In 1886 he was appointed professor of opthalmology in the St. Louis Medical College of Washington University. He had international fame as an oculist.

GREENE, DANIEL CROSBY. An American missionary, died September 15, 1913. He was born in Roxbury, Mass., in 1843, and graduated from Dartmouth College in 1864. He served throughout the Civil War as a private, and in 1869 went to Japan as a missionary under the auspices of the American Board. From 1870-74 he was at Kobe, and from 1874-80 at Yokohama. From 1873-80 he was a member of the Yokohama New Testament translation committee, and was professor of Old Testament Exegesis at Kyoto from 1881-87. In 1901-2 he was president of the Asiatic Society in Japan. He lectured on "Japan" at Harvard University in 1908-9. His published writings include, *Chinese New Testament, Prepared for Japanese Readers* (1878); *Course of Study for Students of Japanese Language* (1903). He was a member of the commission for revising the Japanese New Testament, and he revised and brought up to date *Ritter's History of Protestant Missions in Japan* (1898). He edited *The Christian Movement in Its Relation to the New Life in Japan* from 1902-6 and in 1910-11.

GREENLAND. Danish Arctic colony, estimated area 2,200,000 kilometers (849,420 square miles). Area of settlements, colony proper, 88,100 square kilometers (34,015 square miles). For further statistics, see 1912 YEAR BOOK.

GREENLAND, EXPLORATION OF. See POLAR EXPLORATION, ARCTIC.

GRENADA. The largest of the (British) Windward Islands colonies. Area, 133 square miles; population (1911), 66,750. St. George's (4916 inhabitants) is the capital. The sugar industry has given way to the production of cacao, of which the export in 1911 was valued at £223,104. Total imports (1911), £309,227; exports, £264,640; revenue (1911-12), £98,645; expenditure, £81,012. Shipping entered and cleared (1911), 535,161 tons. Debt (1912), £123,670. Lieutenant-Colonel Sir James Hayes Saddler was governor in 1913. Attached to Grenada are part of the Grenadines, the largest being Carriacou, with an area of 8467 acres and 6886 inhabitants.

GRENADINE ISLANDS. Dependency of Grenada (q.v.).

GRUBB, EDWARD BIRD. An American soldier and public official, died July 7, 1913. He was born in Burlington, N. J., in 1841, and in 1860 graduated from Burlington College. At the outbreak of the Civil War he enlisted in the Third New Jersey Volunteers, and was promoted to be major and lieutenant-colonel. In 1863 his term of service expired and he recruited two regiments of volunteers. He went again to the front with General Grant, and in March, 1865, was brevetted brigadier-general for gallant services. When mustered out at the close of the war, he took charge of his father's iron works in New Jersey and Pennsylvania. In 1885 he lost his fortune, but two years later inherited another from his brother and again went into the iron business. In 1889 he was an unsuccessful candidate for governor of New Jersey. He was appointed minister to Spain by President Harrison in 1890. On the conclusion of his term of service in 1892, he returned to New Jersey and resumed his iron business. He was candidate for Congress in 1908, but was defeated. He suffered financial reverses, and in 1911 was appointed superintendent of the Home for Disabled Soldiers at Kerney, N. J.

GUATEMALA. The most northwesterly of the Central American republics. The capital is Guatemala City.

Area, Population, etc. On account of a boundary dispute with Honduras, the area cannot be stated with exactness. In 1913 a commission of the two countries was carrying on the work of locating the frontier. One estimate of the area is 48,290 square miles; a recent planimetric calculation showed 43,641 square miles. The census of December 31, 1903, showed a population of 1,842,134, about 60 per cent. Indian and most of the remainder Mestizo. As calculated for the end of 1909, the population was 1,991,261; so that in 1913 the inhabitants probably numbered considerably over 2,000,000. Births in 1911 and 1912, respectively, 71,895 and 73,797; deaths, 35,234 and 43,355; marriages in 1912, 5340. Estimates of urban populations cannot be very accurate, but the following have been reported: Guatemala City, 125,000; Quezaltenango, 34,000; Cobán, 31,000; Totonicapán, 29,000; Esquintla, Jalapa, Zacapa, and Chiquimula, each about 18,000; Santa Cruz del Quiché, 17,000; Jutiapa, 16,000; Antigua, Salamá, and Huehuetenango, each about 15,000; Amatitlán, 12,000, Sololá, 11,000.

In 1911, public primary schools numbered 1821, with 55,685 pupils; in 1912, 1837, with 59,631 pupils. In 1911 there were 1657 students in secondary and normal schools. There is a medical college, with 74 students in 1912, and a law school, with 65 students.

Production and Commerce. The soil is fertile. The most important crop is coffee, produced largely on German plantations. Corn is the leading food crop, and other products of importance are sugar, bananas, cacao, and tobacco. Rubber, chicle, and mahogany, cedar, and dye woods are exploited. There is little mining or manufacturing.

The invoice value of imports through the maritime custom houses in 1908 was $5,811,586; in 1909, $5,251,317; in 1911, $6,514,421; in 1912, $7,781,985. In their reports, the Guatemalan authorities add to these values 25 per cent.—an estimate covering freights, commissions, insurance, etc.—and the value of the imports through frontier custom houses. On this basis, the imports in 1911 are stated at $8,166,670 and in 1912, $9,822,462. Exports have been as follows: In 1908, $6,756,138; in 1909, $10,079,219; in 1911, $11,005,835 (including $24,111 through the frontier of Salvador); in 1912, $13,156,537 (including $20,950 through Salvador). Leading maritime invoice values in 1911 and 1912, respectively, in thousands of dollars: Cotton goods, 1849 and 1926; iron and steel manufactures, 626 and 730; food products, 420 and 713; wheat flour, 354 and 512; wines and liquors, 223 and 341; silk goods, 267 and 328; woolen goods, 278 and 300; railway material, 311 and 290; agricultural and industrial machinery, 196 and 281; drugs and medicines, 218 and 276; linen, hemp, and jute goods, 272 and 214.

Principal exports in 1911 and 1912, respectively, in thousands of dollars: Coffee clean, 7283 and 9126; coffee in parchment, 1991 and 1863; bananas, 527 and 667; sugar (including panela), 344 and 565; chicle, 151 and 275; woods, 158 and 242; cattle hides, 325 and 190; rubber, 160 and 141.

In 1912 the United States sent imports and received exports valued at $4,532,361 and $3,863,829, respectively; Germany, $2,250,862 and $6,975,006; United Kingdom, $1,739,598 and $1,710,052; France, $436,882 and $969; Belgium, $146,431 and $18,586; Italy, $96,496 and $11,310; other countries, $322,006 and $576,786; total, $9,822,462 and $13,156,538. Entered at the ports in 1912, 811 steamers, of 1,139,865 tons.

Communications. The length of railway open to traffic at the end of 1912 is reported at 449 miles (722 kilometers). San José and Champerico, on the Pacific are connected by rail with Guatemala City, and the latter with Puerto Barrios, on the eastern coast. The Ocos line was in progress. Telegraph lines, over 4200 miles; offices, about 225. Post offices in 1912, 323.

Finance. The paper peso of Guatemala has a greatly depreciated value. It was worth about 6½ cents in 1908, 6 in 1909, 7 in 1910, and 5½ in 1911. Revenue and expenditure in 1910 amounted to 51,571,000 and 45,959,000 pesos paper, respectively; in 1911, 62,047,000 and 69,162,000. The budget for the year ending June 30, 1914, showed the following estimated expenditures: Interior and justice, 4,856,940 pesos paper; foreign affairs, 1,983,633; finance, 2,596,974; public debt, 25,211,741; public works, 2,632,310; war, 6,235,852; public instruction, 4,084,395; other, 568,942; total, 48,170,787. Public debt December 31, 1911: foreign, $7,414,000 and £1,480,000 (exclusive of arrears of interest); internal, 103,129,468 pesos paper.

Army. Service in the active army is obligatory for all citizens from the ages of 18 to 25, and in the militia from the ages of 26 to 50, but citizens paying a tax of 50 pesos are exempt, as well as certain officials and other individuals prescribed by the law. On a peace basis the army consists of about 6000, which, in time of war, would be increased to about 85,000, embracing about 55,000 of the first line and 30,000 of the second. French officers have been engaged in training the troops, but discipline and organization are far from perfect.

Government. The legislative power is vested in the National Assembly of 69 members, elected for four years by direct vote, and in the Council of State of 13 members, partly elected by the Assembly and partly appointed by the president. The latter is elected by direct vote for six years, and is assisted by a cabinet of six members. The president in 1913 was Manuel Estrada Cabrera, who succeeded to the executive office in March, 1898, and subsequently was elected for terms ending March 15, 1905, 1911, and 1917.

History.. The government of Guatemala at last yielded to the British demands for the payment of the arrears on the public debt. The 10,000,000 pesos held by British creditors was to be liquidated from the proceeds of the export tax on coffee, at the rate of 1 peso per sack. The budget for the period July 1, 1913. to June 1, 1914, totaled 48,170,788.02 pesos, with departmental expenditures as follows:

	Pesos
Interior and justice	4,856,940
Foreign relations	1,983,633.88
Treasury expenses	2,596,974
Public credit	25,211,741
Fomento	2,632,310.20
War	6,235,852
Public instruction	4,084,395
Miscellaneous	568,942.44
Total	48,170,788.02

Guatemala invited the other Central American republics to a conference in Guatemala City in October to consider the possibility of closer unification of the Central American railway, telegraph, and postal services. Licentiate Angel Maria Bocanegra was elected by the Legislative Assembly of Guatemala to the position of judge in the Supreme Court of Justice of Central America.—A Guatemalan boundary commission was coöperating with a Honduran commission to fix the frontier.—The president appointed Licentiates Antonio Batres Jauregui, Carlos Salazar, Antonio Gonzalez Saravia, and Alberto Mencos to the Hague Permanent Court.

GUIANA. See British Guiana, Dutch Guiana, French Guiana.

GUELPHS AND BRUNSWICK. See Germany.

GUTH, William Westley. An American educator, appointed in 1911 president of Goucher College, Baltimore, Md. He was born in Nashville, Tenn. in 1871, and graduated from Leland Stanford Junior University in 1895. After studying law he was admitted to the bar in the same year, and practiced in San Francisco from 1895 to 1898. In 1900 he was ordained to the Methodist Episcopal ministry, and for one year was pastor at West Chelmsford, Mass. He studied at the universities of Halle and Berlin, receiving the degree of Ph.D. from the former in 1904. In the same year he became pastor of the Epworth Church, Cambridge, Mass. After serving here until 1908, he was appointed president of the College of the Pacific. He traveled extensively in Egypt, Palestine, and Asia Minor, and in Europe and England. He was the author of *The Assurance of Faith.*

GUTHRIE, George Wilkins. An American lawyer and diplomat, born in Pittsburgh, Pa., in 1848. He graduated from Western University of Pennsylvania (now University of Pittsburgh) in 1866, and afterward studied law at Columbian (now George Washington) University. He was admitted to the bar in 1869 and began practice in Pittsburgh. In 1876 he was associate counsel for the Tilden electors before the Florida returning board after the election of President Hayes. He was candidate for mayor of Pittsburgh on the Reform ticket in 1896, but was defeated. He was elected mayor of Pittsburgh in 1906, serving until 1909. During his administration many reforms were made in the government of the State, and prominent officials awoke to find themselves convicted of bribery. In July, 1913, he was appointed ambassador to Japan by President Wilson.

GYMNASTICS. The fifteenth annual intercollegiate gymnastic meet was won by Pennsylvania with a score of 25 points. Princeton was second with 16 points, and Yale third with 8 points. Other scores were: New York University, 6; Rutgers, 5; Harvard, 3. The all-round championpship was won by T. Clark of Pennsylvania, with 218 6-10 points. In dual college meets, Pennsylvania defeated Rutgers 25-23, Yale 30-24, and New York University 31-23. Yale defeated Princeton 32½-21½, and Amherst 32-22; Rutgers defeated Columbia, 31-19, and New York University 26-22; Princeton defeated Pennsylvania 27⅔-26⅓. The Western intercollegiates were won by Wisconsin, with Chicago second, and Minnesota third.

The club championships of the A. A. U. resulted as follows: Horizontal bar, Franz Kanis, Newark Turn Verein; rope climb, 18 feet, Edward Lindenbaum, Young Men's Hebrew Association; parallel bars, Paul Krimmel, New York Turn Verein; club swinging, Ray W. Dutcher, New York A. C.; side horse, Roy E. Moore, New York Turn Verein; tumbling, M. J. Bedfod, National Turn Verein; flying rings, J. D. Gleason, West Side Y. C. A.; all-round, Franz Kanis, Newark Turn Verein. The English individual championships were captured by L. Harrison Bradford, All Saints.

GYPSY MOTH. See Entomology.

GYRO COMPASS. See Battleships.

HAGENBECK, Carl. A German naturalist and trainer of wild animals, died April 13, 1913. He was born in St. Pauli, a suburb of Hamburg, in 1844. His father was a fishmonger but was interested in natural history, and in 1848 received in the course of his business six large seals. This encouraged him to add to his own trade the business of buying, selling, and renting live animals. His son rapidly extended these operations, and he soon had travelers in every part of the world. The enterprise extended into a vast business, the most important branch of which was the purveying of trained animals, upon a large scale. In 1892 he purchased a large piece of land at Stellingen, near Hamburg, for the purpose of establishing a zoölogical exhibition park. This developed into the famous Animal Park, which is one of the sights of Hamburg.

HAGUE CONFERENCE, Third. See Arbitration, International.

HAGUE TRIBUNAL. See Arbitration, International.

HAITI. A republic occupying the western part of the West Indian island of Haiti. The capital is Port-au-Prince.

Area, Population, etc. The estimated area is 11,072 square miles. The number of inhabitants is variously estimated, but it is certain that the country is one of the most densely populated of the American republics. According to an estimate of 1909, based on parish registers, the population was about 2,030,000. An estimate of 1912 placed the number at 2,500,000. Probably nine-tenths of the people are negroes, and most of the remainder are mulattoes. Port-au-Prince is the largest city, with perhaps 100,000 inhabitants; Cap Haïtien is estimated to have 30,000, Les Cayes, 25,000, Gonaïves, 18,000. In 1913 there were reported 549 public and 126 private schools; there are three high schools and six lycées. The educational system is very imperfect, and illiteracy is prevalent. The language spoken is a French patois; the religion is Roman Catholicism.

Production and Commerce. Coffee is the leading crop; others of importance are cacao, sugar-cane, tobacco, and cotton. Logwood and other valuable woods are cut for export. There are several sugar mills, and rum and other spirits are distilled. Mining is almost entirely undeveloped. According to custom-house reports, imports in the fiscal years 1911 and 1912 amounted to $7,948,117 and $9,876,555. The Haitian authorities state that the actual values were considerably greater and, on account of under valuation estimate the 1912 imports at $11,165,590. Importation from the United States in 1912 amounted to $7,302,484; France, $1,050,416; United Kingdom, $761,206; Germany, $484,915; all other countries, $277,534; total, $9,876,555. Exports in the fiscal year 1912 were valued at $17,285,485. The greater part of the exports goes to France. Weight in thousands of pounds of the chief exports in 1911 and 1912, respectively: Coffee, 51,796 and 78,168; cacao, 3228 and 6905; cotton, 4198 and 4339; logwood and roots, 74,608 and 93,384; cotton seed, 8058 and 8459.

COMMUNICATION. The reported length of railway in 1913 was 208 kilometers (129 miles). A length of 400 kilometers (about 250 miles) was reported under construction. The Gonaïves-Esmery, a line thirty-one miles in length, was opened. Telegraph line (1910), 124 miles. Post offices (1911), 88.

FINANCE. Revenue is derived principally from import and export duties, paid in American gold. The paper gourde is nominally worth 96.5 cents, but it is greatly depreciated; its average value has been about 20 cents, but in 1912-13 it advanced to about 30 cents. For the fiscal year 1913, the estimated revenue was $3,914,480 and 7,571,083 gourdes, and the estimated expenditure $3,904,291 and 9,095,006 gourdes. The larger estimated disbursements in thousands of dollars and of gourdes were: Public debt, 2802 and 331; interior and police, 315 and 1314; war and marine, 231 and 2380; instruction and worship, 132 and 1860. On March 31, 1912, the public debt, including arrears, amounted to $24,422,281 and 15,176,950 gourdes.

ARMY. Haiti maintains a regular army raised partly by enlistment and with a varying strength depending upon the condition and exigencies of the government. Any statement of its strength is conjectural since the number actually under arms has been estimated as about 3000, while the nominal strength has been stated as over 10,000.

GOVERNMENT. The legislative power is vested in a national assembly of two chambers, the Senate (39 members) and the Chamber of the Communes (96). Members of the lower chamber are elected for three years by direct vote. The senators are elected for six years by the Chamber of the Communes from a list prepared partly by the president and partly by the electors. According to the constitution the president is elected for seven years by the two chambers in joint session. His cabinet consists of six members. General Antoine Simon was elected president December 17, 1908; he was deposed upon the successful revolution of 1911 headed by General Cincinnatus Leconte, who was elected to the presidency on August 16 as from May 15, for seven years. On August 8, 1912, General Leconte lost his life in a fire which destroyed the executive residence. His successor was chosen in the person of General Tancrède Auguste for the term ending May 15, 1910. General Auguste died May 2, 1913, and on May 4 Senator Michel Oreste was elected president for the unexpired term. President Oreste, inaugurated May 4, 1913, chose as his ministers: General Philippe Argant, war; M. Emmanuel Morel, interior; M. Auguste Bonamy, finance; M. Etienne Mathon, foreign relations; M. Auguste Supplice, public works and agriculture; and M. Tertullian Guilband, justice and education. Subsequently M. Supplice was succeeded by M. Morel, and the department of the interior was taken over by M. Seymour Pradel. In January, 1914, occurred revolutionary outbreaks headed by Davilmar Théodore, former president of the Senate, and Oreste Zamor, provincial authority at Cap Haïtien, and on the 27th of the month President Oreste fled for safety to a German warship.

HISTORY. The twenty-seventh Congress sat in special session from April 28 to August 27. One of the most important matters considered was the coinage bill submitted on July 18, 1913, by M. Auguste Bonamy. According to the provisions of the bill, the currency was to be reformed, with the gold gourde (=¼ gold dollar, U. S.) as the monetary unit, divided into 100 centimes. The silver gourde was to be of the same weight and fineness as the U. S. quarter. The bill also provided for the withdrawal of paper money through the National Bank of Haiti.

A new customs tariff was put into effect on August 1, providing specific duties (except on jewelry, which is taxed 10% *ad valorem*) on the basis of the half kilo, and a general surtax of 5% of the duty. Agricultural and mining implements were admitted free; muslins and prints at reduced rates. The Oreste government took energetic steps to enforce the income tax of August 11, 1903, and by a decree of June 7, industrial, commercial, and civil companies were ordered to file financial statements with the minister of finance, in order that the tax of 10% on dividends, interest, and revenue might be declared.

In November it was reported that revolution was brewing at Port-au-Prince. President Oreste surrounded himself constantly with a heavy guard, and actual fighting occurred in the North in December. At the close of the year an agreement was signed at Port-au-Prince whereby the claims of the French government against Haiti, pending for several years, were to be settled by arbitration.

HALE, WILLIAM BAYARD. See MEXICO, *History*.

HALES BAR DAM. See DAMS, and TRANSMISSION OF ELECTRIC POWER.

HALL, FREDERICK BYRON. An American jurist, died January 15, 1913. Born at Saratoga Springs, N. Y., in 1843; and educated in the public schools, he served for one year in the Civil War, but was discharged on account of sickness. In 1867 he graduated from Brown University; he was admitted to the bar in 1870; and in 1877 was appointed judge of the Court of Common Pleas of Fairfield County, Connecticut. He served in this position until 1889 when he was appointed judge of the Superior Court of the State. In 1897 he was appointed judge of the Supreme Court of Errors, and from 1909 until the time of his death was chief justice of this court.

HALLETT, MOSES. An American jurist, died April 25, 1913. He was born in Galena, Ill., in 1834, and received an academic education. After studying law he was admitted to the bar in 1858. Two years later he removed to Colorado where from 1863 to 1865 he was a member of the Territorial Council. From 1866-76 he was chief justice of the Supreme Court of Colorado, serving until 1906. From 1892 he was professor of American constitutional law and federal jurisprudence at the University of Colorado.

HALLOCK, JOSEPH NEWTON. An American editor and clergyman, died March 24, 1913. He was born at Franklinville, N. Y., in 1834, and graduated from Yale College in 1857. He studied divinity at the Yale Theological Seminary, graduating in 1860. For several years he occupied pastorates as a Congregational minister. In 1880 he became editor-in-chief and proprietor of *The Christian Work*, and continued as editor of this paper until his death. He was a director in several large financial corporations. He was the author of, among other books, *How to Teach* (1857), *The Christian Life* (1890), *What Is Heresy* (1894), *Mormonism* (1896), *Life of D. L. Moody* (1900).

HALLOCK, William. An American physicist, died May 20, 1913. He was born in Milton, N. Y., in 1857, and graduated from Columbia College in 1879. He then took the degree of Ph. D. at Würzburg, Germany, returning shortly after to the United States, and accepting an appointment as physicist for the New York Geological Survey at Washington. He served in this position for nine years and for a part of this time was professor of physics at the Corcoran Scientific School at Washington. In 1889 he was appointed professor of chemistry and toxicology at the National College of Pharmacy. This service continued until 1892, when he became assistant in the astro-physical laboratories at the Smithsonian Institution. He then returned to Columbia as associate professor of physics. In 1902 he was made full professor, and four years later dean of the faculty of political science, and held this office until all the graduate faculties at Columbia were merged in 1909.

HAMILTON, John Angus Lushington Moore. An English newspaper correspondent and writer, died June 14, 1913. He was born in London, but after doing newspaper work in England, removed to New York, where for a time he was a reporter. He then returned to London to devote himself chiefly to work as war correspondent and special correspondent for various London papers. He was in the siege of Mafeking in 1899-1900, and the Boxer uprising in 1900-1902, the Balkans in 1903, the Russo-Japanese war, 1904-1905, in the troubles in Assam, 1911-1912, and in the Balkan war, 1913. He was assigned to the Turkish army in the Balkan war and was twice captured by the allies. After leaving the Balkans, he came to the United States, where he attempted to give a lecture tour This, however, proved a failure, and he committed suicide. Mr. Hamilton received a number of war medals for his services. He published several books, including the *Siege of Mafeking* (1900); *Korea* (1904); *Afghanistan* (1906); *Problems of the Middle East* (1908); *Somaliland* (1910); and *In Abor Jungles* (1912).

HAMILTON, William Gaston. An American engineer and philanthropist, grandson of Alexander Hamilton, died January 23, 1913. He was born in New York City in 1832, and at the age of eighteen he showed so strong a predilection for mechanical engineering that he was placed as an apprentice in the machine shops of Henry R. Dunham & Co. He worked through all the departments of this concern and in succession became vice-president, engineer, and president of the firm of Breese, Kneeland & Co., owners of the Jersey City Locomotive Works. He served as general manager and mechanical engineer in the building and operating of the Great Western Railway. In 1886, at the age of fifty-four, he retired from active business, and at once devoted his time to civil and philanthropic activities. In 1894 he was chairman of a committee for the erection of public baths in New York City. He was for many years manager of the Association for Improving the Condition of the Poor, and was a member of the boards of many other philanthropic societies. He wrote *Useful Information for Railway Men*, and achieved some distinction as an amateur painter.

HAMILTON COLLEGE. An institution of higher learning at Clinton, N. Y., founded in 1812. The total enrollment in the various departments of the college in the autumn of 1913 was 200. The faculty numbered twenty. Ralph C. Super was appointed associate professor in the Spanish, French, and German languages, and Willard B. Marsh was appointed assistant in history and speaking. The productive funds of the college amount to about $1,150,000. The library contains about 60,000 volumes. The president is M. W. Stryker, D.D., LL.D.

HAMMOND, James Bartlett. An American inventor, died January 27, 1913. Born in Boston in 1839, and graduated from the University of Vermont in 1861, in the same year he enlisted in the Federal army and served throughout the Civil War. At its close he graduated in theology from the Union Theological Seminary in 1865, going then to Germany, where he specialized in philosophy and science. He then turned his mind to mechanical invention and patented, in 1880, a typewriting machine on scientific principles, which was one of the first typewriters constructed. He introduced the idea of the keyboard and the true alignment, placed his typewriter on the market in 1884, and made his fortune.

HAMPTON NORMAL AND AGRICULTURAL INSTITUTE. An institution for the education of negroes, founded at Hampton, Va., in 1868. The enrollment in all departments of the university in 1913 was 637. There were 135 members of the faculty. There were no notable changes in the faculty during the year, and no important benefactions were received. The important funds of the institute amount to about $2,650,000, and the income to about $285,000. There are about 35,000 volumes in the library. The president is H. B. Frissell, D. D.

HARBORS. See Docks and Harbors.

HARVARD UNIVERSITY. The total enrollment in the academic department of the university in the autumn of 1913 was 2359. In the special schools the enrollment was as follows: Graduate School of Arts and Sciences, 497; Graduate School of Applied Science, 139; Graduate School of Business Administration, 113; Divinity School, 57; Law School, 695; Medical School, 296; Dental School, 196. The faculty numbered 803, of whom 141 were professors, 9 associate professors, 86 assistant professors, 78 lecturers, and 7 associates. In the Summer School of 1913 there were enrolled 1250 students. The endowments received during the year were for the music department, psychical research, and a chair of Japanese language and literature, of which the first incumbent was to be Professor Anesaki. Professor E. C. Moore was appointed professor of education, and Professor A. C. Coolidge was appointed exchange professor to the University of Berlin. Bertrand A. W. Russell was appointed professor of philosophy. For an account of the gifts and bequests received during the year, see GIFTS AND BEQUESTS, and for further notes about the university in general, see the article UNIVERSITIES AND COLLEGES. In Radcliffe College, the Women's Department of the university, there were enrolled in 1913, 568 students. The president of the university is A. Lawrence Lowell.

HAUPTMANN, CARL. See GERMAN LITERATURE.

HAUPTMANN, GERHART. See GERMAN LITERATURE.

HAVEMEYER, WILLIAM FREDERICK. An American capitalist, died September 7, 1913. He was born in New York City in 1850, and was the son of William F. Havemeyer, and a brother of John Craig Havemeyer. When his father in 1865 founded the sugar refinery of Havemeyer Brothers in Brooklyn, W. F. Havemeyer took a great interest in the business, and was eventually admitted to the partnership. He carried on the business with his brother until the consodidation of the firm of Havemeyer Brothers with the American Sugar Refining Company, when he retired from the sugar refining business, engaging in many other financial enterprises, and acquiring a large fortune. In addition to his business interests, he was active in social and philanthropic work, founding the Havemeyer laboratory of New York University, and becoming a member of the counsel of that university. He was an important collector of autographs and manuscripts of the colonial period.

HAWAII. POPULATION AND IMMIGRATION. The estimate based on statistics of births, deaths, arrivals, and departures, showed a population on June 30, 1913, of 217,744, an increase of 25,835 or 13.46 per cent. since the census of 1910. The only races which show a decrease during the past three years are the pure Hawaiians, through an excess of deaths, and the Chinese through an excess of departures. The largest increases are in the Filipinos, introduced by the Hawaiian Sugar Planters' Association; Spanish, introduced by the territorial government; other Caucasians, chiefly American, who have come in large numbers, many in the military forces of the United States; and part Hawaiians, Portuguese, and Japanese, mainly through an excess of births. During the year there were introduced into the territory 2413 Spanish and 228 Portuguese. There were also introduced 65 Russians. Sugar planting during the year introduced 5747 Filipinos. Since 1909, there have been introduced 13,715 Filipinos. The percentage of non-Asiatic laborers employed on the sugar plantations has increased from 12.3 on the organization of the territorial government to 37.15 in 1913. The Japanese on the islands in 1913 were estimated to number 83,100; the Portuguese, 23,160; the Chinese, 21,500; and the Filipinos, 12,600.

AGRICULTURE. The chief industries of the Islands are agricultural. The sugar industry far surpasses all others combined in the value of the output. During 1913, the exports of sugar were valued at $35,235,170 of raw sugar, and $1,372,650 of refined sugar. These were largely decreased from the corresponding amounts of 1912. The fruit-raising industry is large and increases from year to year. The growing of pineapples occupies first place. The exports of fruit and nuts, which consist chiefly of pineapples, amounted to $40,055,622 in 1913, compared with $2,948,733 for 1912. Experiments have been made in the growing of tobacco. This has met with considerable success. Coffee was at one time an important product of the Islands, but in recent years it has fallen off greatly. The exports for 1913, however, show a considerable increase over those of 1912. In the former year they were valued at $492,833, and in the latter $390,494. Coffee is raised chiefly by Chinese, Japanese, and Portuguese, although the larger estates are in the hands of the Anglo-Saxons. The livestock industry is important; most of the meat grown is consumed in the islands. Swine are grown in large numbers, as the Oriental population consumes large quantities of pork.

COMMERCE. The imports and exports for the year ended June 30, 1913, exclusive of specie, aggregated $79,474,880. This was a decrease of $4,668,880 from 1912, although it has a large increase over the largest amount for any other preceding year. The decrease was entirely in exports to the continental United States, which was due to low prices and a shortage of the sugar crop on account of drought. The imports amounted to $36,002,940, an increase of $7,308,618 over those of 1912. The imports from continental United States amounted to $29,129,409, an increase of $6,033,531, and those from foreign countries amounted to $6,830,531, an increase of $1,275,087. The chief imports during 1913 were bags, $824,157; cement, $20,048; chemicals, $1,594,787; coal, $325,329; cottons, $172,244; fertilizers, $271,706; foodstuffs, $2,326,764; iron and steel, $107,425; spirits, $294,237; miscellaneous, $936,924. The exports of 1913 amounted to $43,471,940, a decrease of $11,977,498. Those to continental United States amounted to $42,713,294, a decrease of $12,362,871, while those to foreign countries amounted to $758,646, an increase of $385,373. The exports of domestic merchandise amounted to $42,652,572 to continental United States and $740,284 to foreign countries, while those of foreign merchandise amounted to $60,722 to continental United States, and $18,362 to foreign countries. The imports and exports by countries for the fiscal years 1911-12, are shown in the following table:

Countries	Imports		Exports	
	1912	1913	1912	1913
Australia & Tasmania	$ 330,268	$ 467,078	$ 7,820	$ 14,979
Other Brit. Oceania..	7,618	39,834	2,562	7,918
Brit. India	623,392	844,078	....	....
Canada.....	22,788	24,144	45,579	64,201
Chile.......	590,589	708,626	....	....
France.....	13,786	25,241	19,651	18,697
Germany...	370,116	424,560	110,120	97,715
Hongkong..	329,814	393,294	3,704	6,686
Japan	2,414,346	2,845,756	26,845	113,941
U. King...	711,602	797,839	86,719	144,352
Other for'gn	184,180	303,081	70,278	290,157
Total for.	5,598,444	6,873,531	378,273	758,646
U. S......	23,095,878	29,129,409	55,449,438	43,713,294
Grand total...	28,694,822	36,002,940	55,449,438	43,471,940

SHIPPING AND TRANSPORTATION. During the fiscal year 1913, tonnage entered into the ports of the islands amounted to $1,582,255, an increase of $211,940 over the tonnage of 1912. The tonnage cleared amounted to $1,577,102, an increase of $207,993. This figure is much larger than that for any preceding year. It is exclusive of vessels engaged in interisland traffic, and vessels in the military and naval service. The total number of vessels entered in 1913 was 483, compared with 431 in 1912, and the vessels cleared numbered 476, compared with 429 in 1911.

The territory is peculiarly dependent for its progress on the developments of its transportation facilities. In 1913, there was considerable growth of these facilities, chiefly by the addition of five steamers in the transportation service with other islands. There were also harbor improvements and much wharf, railroad, and wagon-road construction. Six large steamers were building during the year for the traffic with the mainland. The construction of a large floating dock at Honolulu was also begun. The event of chief importance in connection with transportation in the islands, was the enactment at the session of the legislature in 1913 of a public utilities act, which created a public utilities commission, and conferred broad powers upon it. This affected not only transportation service, but public utilities of all kinds, including electric light and power, telegraph, telephone, and other service. Interisland traffic is conducted chiefly by the Interisland Steam Navigation Company, which has a fleet of 17 steamers. Traffic between Hawaii and the mainland and Mexico is carried on with both the Atlantic and Pacific coasts. The bulk of the traffic with the Atlantic coast is handled by the American-Hawaiian Steamship Company, which operates two fleets of steamers—one in the Pacific and one in the Atlantic, the connecting link being the Tehuantepec National Railway, 192 miles in length from the Pacific coast to the Gulf of Mexico. The company has 22 vessels, and is engaged in freight traffic entirely. A triangular service is maintained between Hawaii, Salina Cruz, San Diego, San Francisco, and Puget Sound ports, with six steamers of 12,000 tons capacity. These steamers operate on a 11-day schedule and take 66 days for the round trip of 8800 miles. There is also a Pacific coast service, with four steamers on a 11-day schedule. These take 44 days for the round trip. Other navigation companies are the Matson Navigation Company which operates six steamers running to the Pacific coast, the Oceanic Steamship Company, and two companies which operate oil steamers.

There was considerable railroad construction during the year on several of the islands. There is only one street railway in the territory; this is in Honolulu. The number of passengers carried in 1913 was 11,307,460.

EDUCATION. The years 1912 and 1913 were of unusual importance in the school history of the islands, due to a large extent to legislative enactments by the legislature of 1911, which placed the public schools largely on an automatic adequate and financial basis, and provided also for many new buildings. During the year there was expended for public schools $677,799. The number of all schools is 212, with an increase of five for the year. The teachers in 1913 numbered 986, of whom 674 were in the public schools. Of the teachers, 238 were males, and 748 females. The pupils in all schools numbered 32,938, an increase of 3029 for the year. In the public schools were 25,631, an increase of 1879. The Japanese furnished the largest increase in the pupils of any one race. They numbered 10,990, Portuguese 5497, Hawaiians 4390, part Hawaiians 4146, Chinese 3783, all others 4232.

FINANCE. The year 1913 was on the whole a very satisfactory one in respect to both receipts and expenditures. The net receipts for the year were $4,247,701, and the net disbursements were $4,208,389. The net receipts exceeded the net disbursements by $39,311. The net cash balance at the close of the year aggregated $1,308,347. The principal increases in revenue were in property tax and land sales. The principal decrease was in inheritance taxes, which were only $19,321, as compared with $187,974 in 1912. The bonded debt of the Territory at the beginning of the year was $5,450,000, which increased during the year by the issue of $1,500,000 or 4 per cent. public-improvement bonds, and decreased by the payment of $110,000 of the 1903 issue of four per cent. fire-claim bonds, leaving a total bonded indebtedness of $6,840,000 at the close of the fiscal year.

PUBLIC HEALTH. All the islands are fairly well covered with a well-organized and efficient sanitation force. The legislature of 1913 provided for the employment of a sanitary engineer. In the towns, cottages are largely replacing tenement houses, and on the plantations, buildings which are occupied by laborers are being much improved. There were no epidemics during the year. The number of cases of communicable diseases was 1587, many of which were cases of measles among the arrival of United States troops and immigrants. The diseases causing the greatest number of deaths were pneumonia 426, and tuberculosis 341.

Campaigns for the elimination of rats and mosquitoes were carried on at Honolulu and Hilo during the year. As the result, there was a notable reduction of mosquitoes in Honolulu. During the year 16,778 rats and mongoose were killed in that city. None of these were found to be infected with the plague. No case of the plague has occurred in Honolulu for three years. New methods of dealing with leprosy in the islands continued to meet with good results. There were four institutions maintained in connection with this disease: The leper settlement on the island of Molokai and the leper hospital and the homes for non-leprous boys and girls, respectively, of leprous parents at Honolulu. During the year 72 lepers were received and 62 died. Six were paroled as perhaps cured, one was discharged as not a leper, and three were returned to their home countries, leaving a total of 726 at the close of the year. Of these, 444 were males and 282 were females; 606 were Hawaiians and part Hawaiians, 47 were Portuguese, 38 Chinese, 13 Japanese, 5 Germans, 3 Americans, and 14 scattered among other races.

POLITICS AND GOVERNMENT. The seventh legislature of the Territory began its biennial session on February 19, 1913, and was in session for sixty days. A large amount of legislation of an advanced character was enacted, particularly on political, industrial, and social subjects. These included a law, referred to elsewhere, providing for a public utilities commission. A blue-sky law failed passage. Laws were passed providing remedies for the desertion of wives and children, and for compelling fathers to support their illegitimate children. A new compilation provision and annotation of all the laws of the territory was authorized. In all, 170 bills were passed, the largest number enacted by any legislature of the Territory.

During the session of the legislature, one of the senators from the island of Hawaii died, and a special election was held in April, to choose his successor. There were two Republicans, one Democrat, and one Home Rule candidates. The Democrat was elected by a vote of 761, which was a plurality.

On July 25, President Wilson nominated L. E. Pinkham governor of the Territory, to succeed W. F. Frear.

HAY. The world's hay crop of 1913 was in general more satisfactory than the crops of 1912 and 1911. While statistics on the world's production are not compiled, data gathered in several of the more important countries and the general reports on the condition of the hay crops during the growing season and at the time of harvest make comparisons of different years possible. In England and Wales, the crop was above the average of the previous ten years, and amounted to 9,052,322 tons, as against 8,125,484 tons in 1912, a difference of 926,838 tons. Of the 1913 crop 2,709,068 tons represented hay from clovers and grasses under rotation ("seeds hay") while 6,343,254 tons were secured from permanent meadows, the average yield of the first being 31.86 cwts. and of the other 25.02 cwts. per acre, or nearly 3 cwts. and 1½ cwts. above the average, respectively. The crop of Germany was made up of 12,300,000 tons of clover hay, 1,830,000 tons of alfalfa hay, 3,020,000 tons from irrigated meadows, and 30,000,000 tons from unirrigated meadows, making a total of 47,150,000 tons. In 1912 the corresponding crops were 8,744,000, 1,642,000, 2,798,000, and 27,652,000 tons respectively. The average yields per acre in 1913 were 2.50 tons of clover, 2.95 tons of alfalfa, 2.50 tons of irrigated meadow, and 2.17 tons of unirrigated meadow hay. According to estimates by the United States Department of Agriculture, the production of hay in the United States in 1913 was 64,116,000 tons, as compared with 72,691,000 tons in 1912, the record year. The area devoted to hay for the two years was 48,954,000 and 49,530,000 acres, respectively. The average rate of yield in 1913 was 1.31 tons per acre and 1.47 tons the year before. The central Mississippi Valley was affected by a severe drouth which caused a reduction in yield. In Missouri, as reported by *American Agriculturist*, the average yield was only .76, in Kansas and Oklahoma .88, and in Kentucky and Illinois .90 of a ton per acre. In many sections the larger part of the timothy and clover crop was harvested before the effects of the drouth became serious.

HAYASHI, Count Tadasu. Japanese statesman and diplomat, died July 10, 1913. He was born in 1850. As a boy he lived in the house of an American missionary in Yokohama, where he learned English, and was one of the first students sent from the Japanese government to London, where he worked for a time at the University College school. On his return home, he entered the civil service, and became a governor of two of the provinces of Japan. From 1891-96 he was vice-minister in the foreign office; became minister to Peking in the latter year; minister at St. Petersburg in 1898; and in 1899 minister in London. He was promoted to the rank of viscount in 1907, was foreign minister in the first Soiongi cabinet, and was minister of communications in the second cabinet in 1911-12, and largely responsible for the treaties of alliance between Great Britain and Japan signed in 1902 and 1905.

HAYDN, Hiram Collins. An American educator and theologian, died July 31, 1913. Born in Pompey, N. Y., in 1831, graduated from Amherst College in 1856, and from the Union Theological Seminary in 1859, he was ordained to the Congregational ministry in 1862, becoming pastor of the First Church of Meriden, Conn., in 1862, and serving there for four years. He was subsequently pastor of several churches in Ohio, and in 1887 was appointed president of Western Reserve University. He held this position until 1890, when he resigned, but continued to hold the chair of Old Testament literature in the College for Women at Western Reserve University. His published writings include *The Bible and Current Thought* (1891); *Brightening the World* (1893); *Western Reserve University; from Hudson to Cleveland, 1878-1890* (1905).

HAYNESITE. See Chemistry, Industrial, under *Explosives*.

HAYWOOD, William D. See Socialism, *United States*.

HAZLITT, William Carew. An English man of letters and bibliographer, died September 7, 1913. He was born in London in 1834, studied law, and in 1861 became a barrister. He also studied civil engineering, but finally adopted the study of literature and archæology. He was a copious writer on historical, literary, and archæological subjects. His published writings include *A Venetian Republic* (1900); *Bibliographical Collections and Notes*, 8 volumes, (1876-1904); *Letters of Charles Lamb* (1886); *Memoirs of William Hazlitt* (1867); *Four Generations of a Literary Family* (1897); *Shakespeare, the Man and His Work* (1908); *Faiths and Folklore* (1905); and *The Hazlitts* (1911).

HEALTH RESORTS. See Hydrotherapy; and Saratoga Springs.

HEARN, George Arnold. An American merchant and art collector, died December 1, 1913. He was born in New York City in 1835. In 1860 he joined his father in a dry goods business which had been established since 1826 under the firm name of James A. Hearn & Son. In 1886, on the death of his father, he became the head of the establishment. The business was successful, and Mr. Hearn amassed a large fortune. While still a young man he became known as an enthusiastic art collector. For many years he confined his purchases to the work of American artists, but in 1885 during a trip abroad, he took more interest in the work of the early English schools. He made nearly every year a trip to Europe to add to his collection. In later years he turned again toward American painting, and made an effort to acquire the latest expression in the art of American painters whose work pleased him. His first large gift to the Metropolitan Museum of Art was made about ten years before his death, and consisted of 22 pictures. In December, 1905, he gave the museum 28 additional pictures, and a present of $100,000 cash, with the condition that the interest on this should be used to purchase paintings by living Americans. The directors of the museum were also given the authority to dispose of pictures, if they decided that it was not for the benefit of the museum to keep them.

In 1909 he gave 15 more pictures to the museum. These include famous examples of Van-Dyke, Sir Joshua Reynolds, Sir Thomas Lawrence, Homer Martin, Winslow Homer, and several other famous Americans. In 1911 he made still another bequest which included pictures by many famous American painters and another gift of $100,000, the income of which was to be used as before for pictures by American painters. In addition to the pictures which he gave to the museum, his residence was filled with valuable art objects including more than 300 paintings. His collection of miniatures is said to be one of the best in the United States. He also collected bronzes and sculpture in other forms. He made many gifts to the Brooklyn Institute of Arts and Sciences, of which he was a patron. One of the most notable pictures purchased by him was "Lear and Cornelia," by the late Edwin A. Abbey, which he bought on his last trip abroad in October, 1913. See also PAINTING AND SCULPTURE.

HEDIOSIT. A white crystalline, odorless powder, having a sweet taste. It is readily soluble in water, slightly soluble in alcohol, and almost insoluble in ether. The aqueous solution is acid toward litmus. The drug is the lactone or inner anhydride, $C_{17}H_{12}N_7$, of alpha-glucoheptonic acid, $CH_2OH(CHOH)_5COOH$. It is not poisonous, and when given to diabetic patients does not increase the amount of glucose in the urine, but tends rather to decrease it. Hediosit is said to be useful as a sweetener of the food of diabetic patients, having at the same time a certain food value.

HELIOTHERAPY. The utilization of the direct rays of the sun in the treatment of disease was extended greatly in 1913. Tuberculosis in its surgical forms, with bony involvement, was the malady oftenest treated and benefitted, but many other diseases were shown to be cured or helped. According to Aimes. the list of affections in which heliotherapy had been found an extremely useful adjuvant, included varicose ulcers, burns, sprains, and contusions, certain gynecologic affections, atrophied muscles, resolution of inflammatory exudates, and the sequels of phlebitis and conjunctivitis. He said that mucous membranes were less sensitive to sunlight than the skin, and relates that of forty-eight eyes with trachoma, thirty-five were cured by two exposures to the sun's rays. The conjunctiva of the eyelids bears prolonged exposure to the direct sunlight without harm, but no improvement was noted in rheumatic iritis, in mycosis, or in syphilitic affections. When prolonged treatment is required, as in surgical forms of tuberculosis, sun porches should be built, which should preferably face south or east, in order to get the morning sun. Spring and summer are the most favorable seasons for the treatment, because the ultra violet rays, which are particularly beneficial, are more abundant then. The air should be clear, the atmospheric moisture moderate, and the prevailing winds not too strong. Where a choice of climate is possible, all these conditions should be taken into consideration and the patient sent to a high altitude or a warm sunny region. But heliotherapy may be utilized in any country.

HELY-HUTCHINSON, SIR WALTER FRANCIS. A British administrator, died September 23, 1913. He was born in Dublin in 1849; the second son of the fourth earl of Donoughmore, and was educated at Trinity College, Cambridge. In 1877 he began his colonial career as colonial secretary of Barbados. He subsequently served in Malta and the Windward Islands, and in 1903 was appointed governor at Natal. During the South African War he zealously supported the policy of Lord Milner, and in 1901 succeeded the latter as governor of Cape Colony. His administration of this difficult post was eminently successful. In addition to his duties in Cape Colony, he kept a careful watch over British affairs in Australia, in the West Indies, and the Mediterranean, and in other parts of South Africa. He resigned from the governorship of Cape Colony in 1910 with the reputation of being one of the most efficient and faithful of British administrators.

HENDERSON, JOHN BROOKS. A former United States senator from Missouri, died April 12, 1913. He was born in Virginia in 1826, and received an academic education. He studied law and began its practice in 1848. In the same year he was a member of the Missouri legislature, and from 1861-3 a member of the Missouri convention to determine the question of secession. From 1862-9 he was United States senator from Missouri; in 1867 special commissioner to make peace with the Indian tribes of the West; Republican candidate for governor of Missouri in 1872; and in 1875 special United States attorney for prosecuting the "whiskey ring" at St. Louis. During his term in the Senate he was the author of the Thirteenth Amendment to the Constitution, which abolished slavery.

HENRY XIV., PRINCE OF REUSS. A German ruler, died March 29, 1913. He was born in 1833 and achieved something of a reputation as a soldier. The naming of these princes is the result of a curious custom which, however, need not be explained here. Prince Henry XIV. began his reign over the principality in 1867, but since 1892 his duties have been undertaken by a regent. He was succeeded by Prince Henry XXVII.

HEREDITY. See ZOÖLOGY.

HERZEGOVINA. See AUSTRIA-HUNGARY.

HESSE. See GERMANY.

HETCH-HETCHY VALLEY WATER PROJECT. See WATER WORKS.

HEWLEPP, C. RUSSELL. An American educator, died November 11, 1913. He was born in Brooklyn, N. Y., in 1872, and graduated from Columbia University. Three years he studied art in Paris and then returned to New York, where he became a member of the firm of Lord and Hewlepp, architects. In 1907 he was appointed dean of the School of Applied Design at Carnegie Institute of Technology.

HIDES. See LEATHER.

HIGH COST OF LIVING. See FOOD AND NUTRITION.

HIGH SCHOOLS. See EDUCATION.

HINSDALE, DR. GUY. See HYDROTHERAPY.

HISS, PHILLIP HANSON. An American bacteriologist, died February 27, 1913. Born in Baltimore, in 1868, he graduated from Johns Hopkins University in 1891, and from the College of Physicians and Surgeons in 1895. From that year until 1899 he was assistant bacteriologist at Columbia University; from 1899-1903 instructor in hygiene and bacteriology; and in the latter year became adjunct professor of bacteriology. From 1896-99 he was assistant bacteriologist in the department of health in New York City, and applied his methods of isolating and identifying the typhoid bacillus. His most recent experiments had to do with a method of fortifying the human system against infection, particularly that of pneumonia. The result of his researches was presented to the Congress of Hygiene at Washington in September, 1912. He was the author of many important treatises dealing with the general subject of bacilli, and co-author of Zinssner's *Bacteriology*.

HISTORICAL ASSOCIATION, AMERICAN. The annual meeting of the association was held in Charleston, S. C., beginning December 29, 1913. The session was notable for a number of special conferences in various branches of history. Exceptional interest was shown in the conference on social and industrial aspects of modern history, on which subject a paper was read by Professor W. B. Hall of Princeton University. Other notable papers were those of Professor A. L. Cross, of the University of Michigan, on legal materials as sources for modern English history, and one by J. W. Barnwell on important events in the history of South Carolina. The address of President Dunning was entitled "Truth as History." The meeting for 1914 will be held in Chicago.

HISTORY. See FRENCH LITERATURE; GERMAN LITERATURE; and LITERATURE, ENGLISH AND AMERICAN.

HITCHCOCK, GEORGE. An American artist, died August 4, 1913. He was born in Providence, R. I., in 1850; graduated from Brown University in 1872; and from the Harvard Law School in 1874. His art studies were carried on in Paris and other continental cities. He was one of the best-known American artists, and his work is represented in the Dresden Gallery, in the imperial collection of Vienna, in the Municipal Museum at Alkmaar, Holland, and in many museums and collections in the United States. He was awarded gold medals at the Paris and Chicago expositions and at other exhibitions of paintings. He was an associate of the National Academy of Design, and was a corresponding member of the Paris Society of American Painters.

HOCKEY. The American Amateur Hockey League had an unsatisfactory season in 1913. The New York A. C. and the Wanderers H. C. withdrew, leaving only three teams in the organization. The Irish American A. C. was finally admitted and a schedule of matches arranged. The championship was won by the Hockey Club of New York with 6 victories and 3 defeats. The Crescent A. C., the winner in 1911 and 1912, finished second with 5 victories and 4 defeats. The St. Nicholas S. C. was third with 4 victories and 5 defeats, and the Irish American A. C. last with 3 victories and 6 defeats.

The world's professional championship series were played in New York City for a $2000 purse. The three teams taking part were all from Canada and included the Wanderers, Ottawas, and Quebecs. The final match was between the Wanderers and the Quebecs, the former winning by a score of 12 to 10.

The professional teams introduced an innovation by having only six players instead of the customary seven. This caused considerable discord in hockey ranks not only in Canada, the home of the game, but also in the United States. It is noteworthy that the Ontario Hockey Association, the largest hockey organization in the world, refused to accept the change.

Boston and Cleveland were the scene of many hockey matches in 1913, and the Boston A. A. seven was undoubtedly the fastest amateur team in the United States. The Cleveland A. C. played 43 games, winning 26, losing 14, and tying 3. Princeton won the intercollegiate league championship, although it was generally conceded Harvard, not a league member, had the better team.

HODGKIN, THOMAS. An English scholar, died March 2, 1913. He was born in 1831, and was educated at University College, London, later entering business and becoming a partner in the banking firm of Hodgkin, Barnett & Company of Newcastle-on-Tyne. His interest in literature, however, seduced him from business. His chief studies were in ancient classics and his first historical work in independent form was a pamphlet on Claudian. The chief historical work of his life dealt with this period. It was called *Italy and Her Invaders*, and the first volume appeared in 1880 and the remainder between 1885 and 1899. He was a leader of the Quakers, whose communities in Australia and New Zealand he set off to inspect, when seventy-eight years of age. He collected a series of essays in religious and ecclesiastical history which was published in 1911 under the title *The Trial of Our Faith and Other Papers*.

HOGAN, JOHN JOSEPH. An American Roman Catholic bishop, died February 21, 1913. He was born in County Limerick, Ireland, in 1829. In 1848 he removed to the United States and entered the Theological Seminary in St. Louis. He was ordained a priest in 1852. After serving for a time as pastor in small towns in Missouri, he became pastor of St. Michael's Church in St. Louis, in 1855. He served as missionary in charge of northwestern Missouri until his consecration as bishop of St. Louis, in 1868. He was transferred to the new see of Kansas City, Mo., in 1880.

HOG CHOLERA. See VETERINARY SCIENCE.

HOLLAND, EDMUND MILTON. An American actor, died November 24, 1913. He was born in New York in 1848, the son of George Holland, one of the best-known actors of his day. E. M. Holland with his brothers, George and Joseph, began his connection with the stage when a mere child. When he was fifteen years of age he became a member of Mrs. John Wood's company. Although known for years as one of the most accomplished actors on the stage, he gained his first general reputation as "Captain Redwood" in *Jim the Penman*. Among other plays in which he appeared with success were *Colonel Carter of Cartersville* and *Alabama*. For thirteen years he played at Wallack's Theatre, in New York, under the management of Lester Wallack. He was later at the head of Charles Frohman's comedians, and appeared in *Raffles*, *The Measure of a Man*, *The Bishop*, *The Duel*, *The House of a Thousand Candles*, and *The Bishop's Candlestick*. At the time of his death he was appearing in *Years of Discretion*. Mr. Holland was acknowledged to be one of the most finished actors of his generation.

HOLLEBEN, Theodor von. A German public official, formerly ambassador to the United States, died February 1, 1913. He was born in Stettin, Germany, in 1838, and at forty years of age turned from a military career to the diplomatic service. From 1875-85 he was minister to Argentina, from 1885-91 minister to Japan, from 1891-92 minister to the United States, and from 1897-1903 ambassador to the United States. His diplomatic career in Washington was a stormy one. In March, 1902, a sensational attack was made upon him by Emil Witte, who had been employed in the German embassy. Witte charged that Dr. von Holleben had secured complete plans for the naval defenses of the United States and had established a spy system throughout the country. He also alleged that Prof. Hugo Munsterberg of Harvard College was employed by the German government as chief of a secret service bureau to mold public opinion in the United States. Professor Munsterberg denounced Witte's charges as "a mixture of lies, forgery, and gossip." The chief of the United States secret service said that the letters had been offered to him for a price and that the charges they contained amounted to nothing. Dr. von Holleben was also accused of meddling in United States politics, the charge being that he expressed a preference for William Jennings Bryan in the latter's campaign in 1900. This accusation was also traced to Witte. In 1903 he asked for a long leave of absence. This was granted and he did not return to the United States. He was succeeded by Baron Speck von Sternberg.

HOLLIS, Henry French. United States senator (Democrat) from New Hampshire, born in Concord, N. H., in 1869, graduated from Harvard University in 1892, and admitted to the bar in the following year. From 1896 to 1899 he was a member of the school board of Concord, unsuccessful candidate for Congress in 1900, and was a candidate for governor in 1902 and 1904. He was elected to the Senate on March 13, 1913, and was the first Democratic senator from New Hampshire since 1852. For the details of his election, see New Hampshire. His term expires March 3, 1919.

HOME RULE. See Great Britain.

HOME RULE, Municipal. See Municipal Government.

HOMESTEADS. See section so entitled under Canada, Dominion of.

HONDURAS. A Central American republic. The capital is Tegucigalpa.

Area, Population, etc. The estimated area is 114,670 square kilometers (44,274 square miles). The census of December 31, 1910, returned 553,446 inhabitants, as compared with 500,135 in 1905, 398,777 in 1895, and 350,000 in 1850. The 1910 census, however, was not quite complete, as the inhabitants of certain sections (as in La Mosquitia) were not enumerated. An estimate of December 31, 1911, placed the population at about 566,000. The bulk of the population is Indian. The larger municipalities are (1910): Tegucigalpa, 22,137; Santa Rosa, 10,574; Juticalpa, 10,529; Danté, 8477; Nacaome, 8152; Choluteca, 8065; San Pedro Sula, 7820. Births in 1910 and 1911, 20,994 and 21,825; deaths, 10,295 and 10,620; marriages, 2241 and 2114. In 1911 there were 888 primary schools, with about 30,000 pupils. For secondary education, the government maintains an institute at Tegucigalpa and subsidizes colleges in the departments. A university is maintained also at Tegucigalpa.

Production and Commerce. The leading crop is bananas, which are cultivated chiefly along the eastern coast. Next in importance is corn, and other crops include sugar-cane, tobacco, coffee, and coconuts. Cabinet woods, especially mahogany, and rubber are exploited. Grazing is important, and cattle probably number about 500,000. Some gold and silver are mined, but there is little other development of the large mineral resources of the country.

For the fiscal year 1912, imports and exports respectively are reported at 8,265,095 and 7,706,446 pesos silver. Cotton goods and foodstuffs are the principal imports. Principal exports in 1912: Bananas, 3,073,765 pesos silver; minerals (chiefly gold and silver), 2,131,492; cocoanuts, 485,536; live animals (mostly cattle), 441,894; hides, 325,182; coffee, 205,522; rubber, 159,473. The foreign trade is largely with the United States.

Communications. Roads are generally poor, and there is little railway. The total length of railway is about 100 kilometers (62 miles); of this, 56 miles extend from Puerto Cortés to San Pedro Sula and La Pimienta, and a continuation is projected to La Brea on the Pacific coast. The Tujilo and Juticalpa Railway, 26 miles in length, was under construction during the year. A concession has been granted for the construction of the Honduran section of the so-called Pan-American railway. Telegraphs (1912): 245 offices, with 3220 miles of wire. Post offices (1912), 278.

Finance. The monetary unit is the silver peso, whose weight is 0.723370 oz. of fine silver. The value fluctuates with the price of the metal; at the beginning of 1913 it was about 45.1 cents. For the fiscal year 1913-14, the estimated revenue was 4,714,065 pesos and the estimated expenditure 4,824,000. The principal estimated receipts were: Customs, 2,600,000 pesos; monopolies, 1,400,000; posts and telegraphs, 207,000; stamps, 220,000. Estimates of the larger departmental expenditures were: War, 1,795,887 pesos; interior, 701,244; agriculture and public works, 671,978; public instruction, 510,501; finance, 401,374 (not including 312,820 pesos for the public debt). The external public debt on August 1, 1910, consisted of four loans contracted from 1867 to 1870, amounting to £5,398,570; arrears of interest from 1872, £17,535,305; total, £22,933,875. The internal debt on the same date was 4,053,370 pesos paper.

The budget for the fiscal year 1913-1914 balanced at 4,824,000 pesos. The revenue was derived from import duties, 2,350,000 pesos; export duties, 200,000 pesos; *aguardiente*, 1,400,000 pesos; and sundries, 874,000 pesos. The estimated departmental expenditure was home government, 701,244 pesos; justice, 178,048; foreign affairs, 214,148.50; education, 510,501; *fomento*, 671,978; war, 1,795,886.75; credit, 374,819.75; miscellaneous, 404,374 pesos.

Government. The unicameral congress of 42 members, the president, and the vice-president are elected for four years by direct vote. In April, 1907, Gen. Miguel R. Dávila assumed provisional charge of the presidency (succeeding

Gen. Manuel Bonilla), and he became president early in the following year. An insurrectionary movement, fomented by Bonilla in 1910 brought about the resignation of Dávila, who in March, 1911, turned over the executive office to Francisco Bertrand as provisional president until the end of the year. In November, 1911, General Bonilla was elected president and Francisco Bertrand vice-president. Both were inaugurated for the four-year term on February 1, 1912. On March 21, 1913, Bonilla died at Tegucigalpa and was succeeded by Bertrand for the remainder of the term.

History. A bill was brought into Congress to establish a free port under the name of Puerto Herrera opposite the village now situated on the eastern bay of the Caratasca Lagoon. The measure, which failed to pass in 1912 on account of insufficient funds, was regarded as highly desirable for the development of the Honduran Mosquitia region, returned to Honduras by the Anglo-Honduran treaty of 1857. The treaty of amity, commerce, and navigation, made January 21, 1887, with Great Britain, was extended to April 6, 1915. A stamp tax was levied in the summer; five-peso stamps were required on all foreign documents used in Honduras, or Honduran documents used abroad. The Congress had under consideration an army bill which would have required military service of all able-bodied males between 20 and 40 years of age. Late in October congressional elections were held in the departments of Ocotepeque, Tegucigalpa, Valle, Intibuca, Voro, Santa Barbara, and La Paz.

HONGKONG. An island at the mouth of the Canton River; a British crown colony, with the addition of a leased strip of the Chinese mainland (376 square miles) and about four square miles of the Kowloon Peninsula, besides some islets. The island contains about 32 square miles. Total population (civil), according to the 1911 census, 456,739 (444,664 Chinese). Chinese laborers, chiefly destined for the Malay States rubber plantations, are passed through the port—in 1911, 135,565 emigrants, 149,894 immigrants (excluding to and from Chinese ports). The city of Victoria (the capital) overlooks the harbor, which covers ten square miles and is one of the finest in the world. An enormous trade flows through Hongkong, for which no statistics are available, as the port is free. A glance at the shipping table below will give an idea of its extent (A=ocean going; B=river steamers; C=steamships under 60 tons; D=steam launches):

	Number		Tonnage	
	1910	1911	1910	1911
British A..	4,262	3,907	8,111,946	7,589,995
Foreign A..	4,312	4,180	8,103,969	7,917,640
British B..	6,483	6,871	4,000,073	4,116,736
Foreign B..	1,334	1,428	706,616	736,057
SS. C......	3,153	3,263	136,765	130,092
Junks	21,170	25,334	2,100,887	2,572,588
Total.....	40,714	44,978	23,160,256	23,063,108
Local D....	466,014	461,984	10,986,234	10,981,990
" junks.	40,436	36,608	2,387,871	2,134,054
Total.....	547,164	543,570	36,534,361	36,179,152

The island has practically no cultivable land; but in the leased territories the Chinese carry on extensive agricultural enterprises, raising sugar-cane, vegetables, rice and other grain, and fruits. Hongkong is a manufacturing and ship-building centre. Kowloon is connected by rail with the Chinese frontier, where the line meets the one from Canton. The revenue and expenditure amounted for 1911 to 7,497,231 dollars and 7,077,177 dollars, respectively. The debt is placed at £1,485,732. The governor in 1913 was Sir F. H. May, appointed 1912. A district officer resides at Taipo, the headquarters of the newly leased territory.

HOOKWORM DISEASE (Uncinariasis; Ankylostomiasis; Miners' Anæmia). The work of the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease was set forth in the third annual report. The objects of the commission were to educate the people in prevention, this being accomplished by enlisting physicians in the work, by newspaper articles, by distributing bulletins and letters, by lectures, and by personal visits and demonstrations. A field force of sanitary inspectors, and a laboratory force was also provided, to work in coöperation with State and local health boards. During 1912, 238,755 persons were treated for hookworm at an expense per person of 77 cents, as compared with 140,378 patients treated during the previous year at an average cost of $1.05 per person. In the three years a total of 393,566 cases of hookworm disease were treated. The commission expended in 1912 $184,671.60, in addition to $22,482.44 spent by various counties, $19,972.52 by States in the campaign, making a grand total of $227,126.56. The laboratory force made 326,951 microscopic examinations during the year. The use of the microscope in diagnosis was greatly extended, with the result that many cases of uncinariasis were recognized, which, on account of slight clinical symptoms, might otherwise have been overlooked. In this connection it was interesting to note, in the report of Dr. W. C. Billings for 1912 on examination of immigrants in San Francisco, the fact that 1556 cases of hookworm disease were detected in 1912, or over double the number found in 1911. Billings ascribed this increase to the use of the microscope in diagnosis and pointed out that in the Oriental races it was impossible to detect all cases of infection by clinical examination alone. In connection with the field work of the Rockefeller commission, an investigation of 129 cases of amenorrhea due to the hookworm, showed that this disorder was a frequent and unsuspected factor. The method of treatment recommended by the commission is as follows: A dose of Epsom salts is administered on the evening of the first day, or one dose is given at 5 p.m., a light supper at 6 p.m., and another dose of Epsom salts at 8 p.m. On the second day, one-third of the dose of thymol is given at 6 p.m., one-third at 7 p.m., and one-third at 8 p.m. At 10 a.m. another dose of Epsom salts is given. This permits the withdrawal of the last one or two doses of thymol, if unfavorable symptoms supervene. The average dose is 30 grains. It is considered best in giving the Epsom salts to dissolve a tablespoonful of it in a tablespoonful of water, administer this, and then have the patient drink copiously of water. After the morning dose of salts following the thymol, water should not be given so freely. During the administration of thymol, little if any water is allowed. About an hour after the third dose of thymol, a cup of coffee without milk is permitted, and half an hour after the morning salts, one or two cups of coffee without milk but with crackers. Search was also made for a better remedy than thymol. Although this drug has proved very efficient, when used carelessly it may give rise to serious symptoms of poisoning. Schuffner and Vervoort, after eight months' trial with oil of chenopodium in 1457 cases, believed that this drug is far more efficient than thymol. Compared with eucalyptus oil with a coefficient of 38, naphthol with 68, and thymol with 83, oil of chenopodium surpassed them all with 91. Another great advantage is that it expels ascarides along with the hookworms, thus impressing the minds of patients much more than when the ocularly insignificant hookworms alone are expelled. It is also comparatively pleasant to take.

The quarterly report of the hookworm commission of the North Carolina State board of health showed that during the three months ended March 31, State and county dispensaries for the free examination and treatment of hookworm disease were conducted in twelve counties; that 35,472 persons were microscopically examined for hookworm and 10,684 persons received free treatment for the disease. Up to date, 216,616 persons had been examined in the State, of whom 122,656 had received free treatment. The dispensary work was carried on in sixty-five counties and six additional counties provided for it.

HOPS. The world's hop production in 1913 was estimated at about 1,600,000 cwts. of 110 pounds each, as compared with a harvest of 1,900,000 cwts. in 1912. While the yield in the United States was very satisfactory, the crops in many of the hop regions of continental Europe were reduced by untoward weather conditions and to some extent by insect attacks. The continental crop was reported at 675,000 cwts., the British at 275,000, and the production of the United States at 480,000 cwts. The German crop amounted to 320,000 cwts., as compared with a yield of 460,000 cwts. the year before. The hop crop of Alsace-Lorraine was the smallest in years, but owing to prevailing high prices it was equal to the average total crop value for the last 35 years. Baden produced only about 9000 cwts., as against an average of 12,000 cwts. for the last 10 years. The Bavarian crop amounted to 220,000 cwts., while Württemburg produced 45,000 and Prussia 15,000 cwts. Part of the German crop was of good color and quality and sold well at from $35 to $50 per cwt. of 110 pounds. Austria-Hungary produced 260,000 cwts., as compared with 415,000 cwts. in 1912. To the total production Hungary contributed 39,000 cwts. and Bohemia 155,000 cwts. In the famous Saaz region a rainy and cold season retarded growth and the yield was only 90,000 cwts., as against 240,000 cwts. in 1912, which was an exceptionally good year. Belgium and Holland produced 65,000, Russia 60,000, and France 50,000 cwts. in 1913. In the United States the Pacific coast crop was in excess of the yield of the previous year. Oregon yielded 125,000 bales, California 95,000 and Washington 40,000, followed by New York with 35,000 bales, the total being 295,000 bales of 180 pounds each, or 53,100,000 pounds. Owing to the shortage in European crops prices were good in the fall of the year and by October from 15,000 to 20,000 bales had been exported by the United States at a very satisfactory financial return.

HORSES. See STOCK-RAISING, and VETERINARY SCIENCE.

HORTICULTURE. Taken as a whole the year 1913 was one of short fruit crops, both in Europe and in America, with resulting high prices and a noticeable curtailment of supply in the smaller markets. Decreased production was largely due to late spring frosts, although insects, plant diseases, and in some sections severe droughts prevailed throughout the season. The most serious shortage in Europe was the grape crop, which, except for the Mediterranean districts, was about half of last year's crop. Italy produced a banner crop of grapes. (See LIQUORS under *Wine.*) Europe produced a fair crop of olives. Reduced yields of such deciduous fruits as prunes, pears, and apples were sufficient to stimulate the export trade of the United States. The Australian fruit crop was a little below normal but prices were good. Similar conditions were reported from Canada, where, however, large crops of peaches and plums were produced, the excess yield helping to make up local shortages in the United States.

In the United States the abundant apple crop in 1912, which was finally figured at 41,770,000 barrels, was reduced to an estimated yield of 26,240,000 barrels in 1913. The crop in Canada was likewise short. As a result of the big freeze in California, that State shipped only 18,085 cars of citrus fruits in 1913, as compared with 40,290 cars in 1912. The damage to the trees was so serious that the 1914 crop will be below normal. On the other hand, Florida again shipped a banner citrus crop of about 25,000 cars in 1913 as compared with about 20,000 cars in 1912. In spite of California's short crop, the returns were over 80 per cent. of those secured in 1912. This is largely due to the use of an improved orange separator through which water is forced by a 4-inch centrifugal pump. The heavy and unfrosted fruit sinks to a lower depth in the swiftly moving current than the light and damaged fruit, is carried out at a different point than the latter fruit, and delivered to the grading machine. Instead of the usual gain California's fresh deciduous fruit crop was a few cars short of last year's shipment, and the cured fruit pack was considerably reduced. The New York State grape districts yielded only 3957 ten-ton carloads in 1913, as compared with 7528 twelve-ton carloads in 1912. There was a very light crop of peaches in the South and an abundant crop in the North. The 1912 canned vegetable pack turned out larger than was expected. The figures for 1912 are 14,022,000 cases of tomatoes, 13,109,000 cases of corn, and 7,307,000 cases of peas. Although considerably less than last year, the onion crop of 4,692,500 bushels and the potato crop of 331,525,000 bushels were sufficient to supply the demand.

EXPORT TRADE. During the fiscal year 1913 the United States exported fruits worth $36,345,517, as compared with imports worth $28,657,084. Fresh apples to the value of $7,898,634 and many fresh pears were shipped abroad. There was also a general increase in exports of canned and dried products; $7,353,537 worth of vegetables and $733,685 worth of nuts were exported, as compared with imports of vegetables valued at $11,358,761 and nuts to the value of $13,965,569. Very few potatoes were imported in 1913, and imports of this crop will probably be low for some time. (See *Quarantine Regulations.*)

The Hawaiian canned pineapple crop, most of which comes to the mainland of the United States, was estimated at about 1,600,000 cases in 1913, as compared with 1,318,336 cases in 1912. In order to market this crop, it was necessary to reduce wholesale prices, and to seek a larger outlet in foreign countries which thus far had taken only about ten per cent. of the Hawaiian product. Porto Rico was about to enter into the canned pineapple trade, factories having been established on the island.

A successful shipment of plums was made from Victoria, Australia, to California during the year. Australia now imports in the off season large shipments of fresh apples from the northwestern United States. During 1913 and a year or two previously the pili nut, or Java almond, was introduced from the Philippines into the United States' trade and was received with much favor. The nuts are as large as a medium-sized pecan, somewhat triangular in shape and contain a kernel of fine flavor. There was great activity in Panama in acquiring cocoanut lands. About 10,000 acres were planted by Americans during 1913. On account of the prevalence of banana diseases in Central America increased planting were being made of the dwarf Chinese or Cavendish banana. This variety is quite disease-resistant, although it is not as compact a shipper as the common Bluefield's or Jamaica banana. The banana industry was being rapidly developed in Cuba, that country now shipping over 2,500,000 bunches to the United States.

Japan was rapidly developing an export fruit trade. Navel oranges were grown in considerable quantities and were successfully competing with California navels in Australian markets. During the year 1913 Japan shipped 1000 boxes of navel oranges to the United States. The Japanese government had taken active steps to encourage the development of the olive oil industry in Southern Japan. In this connection California decided to devote its attention to the ripe pickled olive industry, since it could not compete with foreign olive oil. During 1912 Japan exported about 6000 tons of green peas to Europe.

QUARANTINE REGULATIONS. In addition to the quarantine against fruits from the Hawaiian Islands (see YEAR BOOK for 1912, article HORTICULTURE) the Federal horticultural board of the United States Department of Agriculture quarantined against oranges, grapefruit, sweet limes, peaches, and other fruits coming from Mexico that are capable of harboring the Mexican fruit fly. In addition to an earlier quarantine against potatoes from many foreign countries where the potato wart disease was prevalent, a quarantine against powdery scab and other diseases was temporarily extended on December 24, 1913, to include practically all of Europe and the Dominion of Canada. Provision was made for lifting this quarantine as soon as any country or district could be shown to be free from disease. In such cases potatoes will be admitted under proper regulation and inspection.

UTILIZATION OF GRAPE SEEDS. Recent investigations by the U. S. Department of Agriculture showed that four commodities, syrup, fixed oil, tannin extract, and meal, could be made from grape and raisin seeds, of which from 3000 to 4000 tons are available annually in the United States. The syrup has the characteristic flavor and taste of the raisin, the fixed oil is adapted to paint and soap manufacture, the tannin extract is well adapted for tanning leather, and the meal has a high protein content and should prove useful as a stock feed. All of these commodities can be produced in important commercial quantities.

LEMON CURING. In some experiments conducted in Cuba, W. Snodgrass and C. D. Abbey found that lemons may be rapidly cured by submitting them to alcohol fumes in a closed room for a period of from two to two and one-half days, after which time the lemons continue to color without more alcohol.

PROLONGING THE SEASON FOR PRESSING OLIVE OIL. As a result of extensive tests, G. Sani, an Italian investigator, found that olives may be picked from the tree at the normal period, placed in cold storage for several weeks, and then pressed without affecting the quality of the oil. When the weather is sufficiently cool the olives can remain on the trees for several weeks after the normal harvest period without materially changing the oil.

CITROUS FRUIT BY-PRODUCTS. As a result of extensive studies relative to the utilization of waste oranges and lemons, the U. S. Department of Agriculture found that lemons which had heretofore been discarded would yield from 15 to 60 pounds of citric acid per ton. Likewise a method was devised by which 60 per cent. of the essential oil from both oranges and lemons could be recovered. A yield as high as 6¼ pounds of essential oil of orange or lemon was obtained from a ton of fruit. The gross maximum income per ton from the best quality of culls by methods thus far devised approximate $45. Several companies were considering the manufacture of these by-products.

NEW FRUITS AND PLANTS. During the year the U. S. Department of Agriculture announced a number of new or little known native fruits and nuts that were considered worthy of more extensive trial. These included the Eastman, Monocacy, and Summer King apples, Douglas pear, Chesapeake strawberry, Ormond persimmon, Pollock avocado, and Major, Burkett, Havens, and Owens pecans. The limequat, a new hybrid substitute for the lime, fruited for the first time. This fruit was obtained by crossing the West Indian lime with the kumquat. It is very much hardier than the lime, having withstood the past three winters in extreme northern Florida. The Rollinia, a valuable new fruit from Brazil, fruited for the first time, at the Miami field station.

The dasheen, which root crop the department is widely advocating as a substitute for the Irish potato in the South, was received with much favor. A carload of the tubers was used in extensive cooking, forcing, and flour-making tests. The plants are easily forced in winter and the blanched shoots make a delicate table vegetable. The rapid growth made by the Japanese edible bamboo, with stems forty feet high, at the department's bamboo plantations in Louisiana and Florida, demonstrated the promising character of this valuable plant for the South.

M. Gaston Bonnier submitted to the National Agricultural Society of Paris samples of a new vegetable ivory made from the albumen of the fruit of certain small palms (of the genus *Hyphæne*, tribe *Borassus*) growing in the forests of French Sudan. The albumen hardens on exposure to the air and it resembles natural ivory in color and texture. This product is said to resemble the vegetable ivory from another palm (*Phytelephas macrocarpa*) found in equatorial South America.

The leaves and shoots of *Catha edulis*, a plant occurring in large quantities in East Africa, particularly in Abyssinia, recently appeared on European markets as a substitute for tea. The trial culture of tea in South Carolina has now developed to the extent that a crop yielding 14,000 to 16,000 pounds of high-grade tea finds a ready market in competition with imported teas.

PLANT BREEDING AND IMPROVEMENT. As a result of his blueberry investigations (see HORTICULTURE, in YEAR BOOK for 1910) F. V. Coville secured many thousands of promising hybrids. Berries nearly seven-eighths inches in diameter were grown in the greenhouse, and the new method of propagation by "tubering" produced plants 18 inches to 3 feet high at the age of 18 months. In the work of improving and standardizing alkaloid-yielding plants the U. S. Department of Agriculture reported valuable results with belladonna. It seemed practicable to grow belladonna of any desired alkaloid content within normal limits of variation and also to secure uniformity of quality.

In France L. Trabut had developed a new method for the rapid propagation of new varieties of grapes. The grape seedlings are cleft-grafted on green shoots of old vines and produce canes about three yards long during the first season. M. Gard, who has made an extensive study of the sexual elements of grape hybrids, concluded that the deviations from the normal was confined to the male flower. E. Graino-Canina has found that all of our common spray mixtures have a more or less toxic action on the pollen of grapes.

U. P. Hedrick found a new taxonomic character for peaches, namely, peach blossoms showing green inside the calyx cup yield white-fleshed fruit and those showing orange inside the calyx cup yield yellow-fleshed fruit. L. Daniel and J. Delphon reported a graft hybrid between the peach and the almond. The hybrid shoots developed at some distance above the union, and the phenomenon has re-occurred for several years. As a result of his breeding work with nut trees, Dr. R. T. Morris reported the successful growth of butternut seedlings from nuts which were unfertilized by male flowers.

From an extensive study of garden beans, J. A. Harris found strong evidence of varietal differences with respect to mortality. In some strains the heavier, in others the lighter, seeds seem less capable of development. Experiments concluded by the U. S. Department of Agriculture afforded definite evidence that the crossing of two varieties of Indian corn was followed by an increase in the size of the kernels in the same year that the crossing was done. This increase is not to be confused with the increased yields secured in the year following when the first generation hybrid plants are grown. An extensive study of inheritance in cabbage hybrids conducted at the Virginia station showed that there was very little danger of cabbage varieties mixing in the fields; hence, new and valuable varieties may be perpetuated by pedigree selection alone.

G. W. Oliver described a simple method for successfully transporting cuttings of herbaceous plants from distant places. A layer of cuttings is arranged without crowding on a piece of glass with the upper surfaces of the leaves facing the glass. Two or three inches of damp sphagnum moss is evenly distributed over the cuttings. Another layer of cuttings is then placed on the moss and a second square of glass is placed over these cuttings. The whole package is then pressed down firmly and tied together. By keeping the moss moist and giving all the light possible the cuttings will carry well, and, if the journey is a long one, they will have, in many cases, rooted freely in transit. With the moss only slightly dampened scions and bud sticks of rare plants keep a very long time in good condition under the same treatment.

LITERATURE. Among recent works dealing with some phases of horticulture are: E. Bourcart, trans. by D. Grant, *Insecticides, Fungicides, and Weed Killers* (London, 1913); L. C. Corbett, *Garden Farming* (Boston, Chicago, and London, 1913); J. C. Newsham, *The Propagation and Pruning of Hardy Trees, Shrubs, Miscellaneous Plants, with Chapters on Manuring and Planting* (London, 1913); E. Peet, *Practical Tree Repair* (New York, 1913); P. B. Popenoe, *Date Growing in the Old World and the New* (Altadena, Cal., 1913); F. A. Waugh, *The American Peach Orchard* (New York and London, 1913); H. H. Thomas, *Indoor Gardening in Room and Greenhouse* (London, New York, Toronto, and Melbourne, 1912); E. H. Jenkins, *The Hardy Flower Book* (London and New York, 1913); E. R. Lake, *The Persian Walnut Industry of the United States* (U. S. Department of Agriculture, Bureau Plant Industry Bulletin 254, 1913); *New Garden Plants for the Year 1912* (Royal Botanical Gardens, Kew, Bulletin Miscellaneous Information, 1913, App. 3), contains a descriptive list of all new plant introductions reported in various publications during 1912.

HOSPITALS. Bequests and donations to hospitals during 1913 reached an enormous total. Among the more notable may be mentioned the following: Mt. Sinai Hospital, New York City, $100,000; New York Infirmary for Women and Children, $10,000; and a donation for poor convalescents of $1,000,000, were provided by the will of Mrs. Caroline Neustadter. By the will of Mrs. Elizabeth M. Newton, the Tuberculosis Hospital for Chautauqua County, New York, received $150,000; the Homeopathic Hospital of Pottstown, Pa., $25,000 by the will of Dr. Annie M. Hawley; St. Luke's, the German, and Lincoln Hospital, all of New York City, $25,000 each, and Mt. Sinai $100,000, by the will of Benjamin Altman; St. Luke's Hospital, New York City, $50,000, by bequest of H. C. von Post; Johns Hopkins Medical School, Baltimore, $1,500,000, from John D. Rockefeller; the Boston Lying-In

Hospital over $500,000 to accumulate for twenty-one years, by the will of Francis Amory. The late Sebastian D. Lawrence bequeathed $600,000 for a hospital and other charities at New London, Conn. St. Luke's Hospital of New York City, received $75,000 from the estate of Francis E. Bacon. The Massachusetts General Hospital received $25,000, and Harvard Medical School $50,000, by the will of Dr. Arthur T. Cabot. The University Hospital of Philadelphia received one-third, and the Pennsylvania Epileptic Hospital two-thirds of a contingent bequest of $130,000, from the estate of Mrs. Anna F. Francine. To the Hahnemann Hospital of Chicago, was given $100,000 by William Wrigley. George W. Elkins donated $135,000 to the Abington (Pa.) General Hospital. Massachusetts General Hospital, Boston, received $30,000, the Children's Hospital $50,000, the Massachusetts Charitable Eye and Ear Infirmary $10,000, by the will of Harriet O. Cruft. The Presyterian Hospital, Philadelphia, $100,000, in memory of Sarah L. Broadhead. Rhode Island Hospital, Providence, $200,000 for the erection of a building for private patients, by the will of Jane Frances Brown. The Mary Dykeman Memorial Hospital, Logansport, $100,000 by the will of the late Judge D. D. Dykeman. St. Luke's Hospital, South Bethlehem, Pa., $35,000, donated by E. B. Coxe, Jr. The Presbyterian Hospital, Philadelphia, $55,000 by the will of Mrs. Jane McKee Norris. The Samaritan Hospital, Troy, N. Y., received bequests and legacies amounting to more than $100,000 from the estate of Mrs. Charles Knight, $50,000, donated by F. H. Peabody, and $50,000 by Mrs. Elida Van Schoonhoven, and two donations of $20,000 each from Robert B. Cluett and George B. Cluett. Theophilus J. Zurbrugg, of Riverside, Pa., left $250,000 for the foundation of a new hospital in Riverside, and $5000 each to the German Hospital, Philadelphia, and the Burlington County (N. J.) Hospital. The sum of $200,000 was bequeathed to the Champlain Valley Hospital, Plattsburg, N. Y., by the late Loyal L. Smith. The Presbyterian Hospital, Philadelphia, received $318,000 from the residuary estate of Lady Martha E. Kortright of England. A donation of $15,000 was made to the Maternity Hospital, Albany, N. Y., by Anthony N. Brady. Cedar Falls, Iowa, City Hospital, received $25,000 from Joseph Sartori. St. Mary's Hospital, Brooklyn, was given $100,000 by Mr. and Mrs. James Shevlin, in memory of Bishop Laughlin. The Maine State Sanatorium received $75,000 by the will of Levi M. Stewart. Bryn Mawr (Pa.) Hospital $55,000 by the will of Miss Kate Clevenger. Charity, Lakeside, St. John's, and St. Alexis Hospitals, Cleveland, $35,000, the first installment under the will of Calvary Morris. The Sanatorium for Hebrew Children, Rockaway Park, N. Y., $20,000 by the will of Caroline Neustadter. St. Luke's Hospital, contingent funds of $125,000 and $30,000, and the Women's Hospital of New York City, $25,000 by the will of S. F. Thompson. The National Jewish Hospital for Consumptives, Denver, was given $50,000 by Samuel Grabfelder. The Lowell, Mass., General Hospital received $100,000 for the erection of a hospital for the Care of Incurable Patients, by the will of F. B. Shedd. The Union Hospital, Terre Haute, Ind., $50,000 from the estate of James McGregor. By the will of F. H. Thompson, the Mercy Hospital, Chicago, received a bequest of $100,000 with a contingent bequest of $200,000.

The new Ithaca (N. Y.) City Hospital was formally opened August 1. The new building of the Italian Benevolent Institution and Hospital, of New York City, with accommodations for 100 patients, was formally opened. A tuberculosis annex and night camp was opened by the New York Nose, Throat, and Lung Hospital, adjoining the present building and containing over fifty beds. The camp is intended for men only, who go there after their day's work is over, and here every detail of their lives is supervised. The New York Ophthalmic and Aural Institute, founded by Dr. Herman Knapp in 1869, moved to its new building at 57th Street and 10th Avenue, on October 1. The new hospital is seven stories high and especially constructed for the care of diseases of the eye, ear, and nose. St. Rose's Free Home for Incurable Cancer was dedicated on December 15, 1912. It has accommodations for 100 patients. In Pennsylvania the new building of the Henry Phipps Institute was dedicated May 10. Mr. Phipps has given about $1,000,000 for the erection of the institute, and has set aside $50,000 a year for its support. The institute is for the treatment of tuberculosis, and is five stories high, with a frontage of 132 feet. A new building accommodating 120 diphtheria patients was added to the Hospital for Contagious Diseases, Philadelphia, at a cost of $122,680. The Monongahela Memorial Hospital Association erected a new building costing $75,000. In Washington, D. C., a new Eye, Ear, and Throat Hospital was opened. The Frostburg Miners' Hospital, for which the State appropriated $25,000 and the necessary ground, was opened September 1. The new building of the German Hospital was formally opened February 16. The building cost $350,000 and accommodates 150 patients. The Sarah Morris Institute for Children, Chicago, was dedicated May 25. The institute was made possible by a bequest of $300,000 by Mrs. Sarah Morris, and has 125 beds for the care of sick children. The new Cincinnati Hospital was opened for inspection on October 19. In Indiana the Robert W. Long State Hospital, Indianapolis, was completed in November. Funds amounting to $225,000 were given by Dr. and Mrs. Robert W. Long. The new St. Vincent's Hospital, Indianapolis, was opened February 15. It is a five-story building, occupying an entire block, and containing 325 rooms. The Elkhart General Hospital, erected at a cost of $80,000, was opened July 26. In Texas a contagious annex to the John Sealy Hospital, Galveston, was completed and the out-door annex to the Physicians' and Surgeons' Hospital, San Antonio, opened May 6. In Louisiana the new Illinois Central Hospital, New Orleans, was opened for patients on March 7. At Jacksonville, Fla., the new St. Luke's Hospital was opened in October. The Montana State Sanatorium for Tuberculosis, at Warm Springs, completed at a cost of $45,000, was opened. In California, the Universal City Hospital was formally dedicated, August 8, and the new Pomona Valley Hospital, costing $60,000, was opened late in August. The Henry Phipps Psychiatric Clinic, a department of Johns Hopkins Hospital, Baltimore, established and erected by Mr. Phipps, was opened April 16.

FOREIGN COUNTRIES. In Canada a new hospital, was opened in Ashcroft, B. C., and the new wings of the Winnipeg Hospital, costing $650,000, were completed. On June 19 the new Toronto General Hospital was opened. This charitable institution dates from the year 1818. Nearly $3,000,000 was secured for the institution from various sources. There are accommodations for 120 surgical and 120 medical patients, in the main wing, besides 120 beds in the administration building, for special cases. The buildings are so arranged that the grounds are enclosed on all sides, and wide verandas and roof-gardens are conspicuous features. The Royal Victoria, Montreal General, and Montreal Maternity Hospitals, each received $50,000; the Royal Alexandra Hospital for Infectious Diseases, Montreal, and Ross Memorial Hospital, Lindsey, Ontario, each $25,000 by the will of Mr. James Ross of Montreal. According to the consular report of August 7, the cabinet of Cuba granted the department of sanitation forty new hospitals for the island. They are to be paid for out of the lottery fund. An appropriation of $65,000 for establishing a hospital at Guatanamo was also provided for. At Kobe, Japan, the International Hospital was being rebuilt. It was stated that a modern building was to be erected. The king of Siam purchased a large building, known as Himapan Park, with extensive gardens, in the northern part of Bangkok, and presented it to the city for hospital purposes. Funds for construction and maintenance were also to be provided by the king. An institute for medical research in South Africa was being established at Johannesburg. It was to serve the whole of this region and was to be called the "South African Institute for Medical Research." Industrial diseases of the Transvaal, which cause a heavy mortality, were to be investigated. The institute was to be located near the largest hospital in South Africa. *The Modern Hospital*, a new journal devoted to the collection and dissemination of hospital knowledge, was established in 1913, by Dr. Otho F. Ball of St. Louis, Mo. See also GIFTS AND BEQUESTS.

HOT SPRINGS, ARK. See HYDROTHERAPY.

HOT SPRINGS, VA. See HYDROTHERAPY.

HOUSTON, DAVID FRANKLIN. An American educator and public official, Secretary of Agriculture in the cabinet of President Wilson. He was born in Monroe, Union County, North Carolina, in 1866, and graduated from South Carolina College in 1887, taking post-graduate courses at Harvard and at the University of Wisconsin. In 1887 he became tutor of ancient languages at South Carolina College; from 1888-91 superintendent of public schools at Spartansburg, N. C.; and adjunct professor of political science at the University of Texas in 1894. He served in this capacity and as associate professor, professor, and dean of the faculty at the University of Texas until 1902, when he was appointed president of the Agricultural and Mechanical College of Texas. In the latter year he became chancellor of Washington University, St. Louis, and held this position until his selection as Secretary of Agriculture by President Wilson. He is a member of the Southern education board, a trustee of the John F. Slater fund, and a member of the Rockefeller sanitary commission. He is the author of *A Critical Study of Nullification in South Carolina,* and other works.

HOWARD UNIVERSITY. An institution of higher learning at Washington, D. C., under the direct auspices of the national government. The students enrolled in 1913 numbered 1443. Of these 300 were in the College of Arts and Sciences, 291 in the School of Medicine, 105 in the School of Law, and 48 in the School of Theology. The remaining number were in the Teachers' College, in the Academy, and in the Commercial College. The faculty numbered 115. New professors added to the faculty during the year were Dr. D. Butler Pratt, professor of church history, Hebrew, and exegesis; Professor G. David Houston, professor of English; and Professor Turner of the teaching of biological sciences. The benefactions received during the year include a gift of $3000 by John A. Cole, as a donation to the Alvord scholarship fund. The productive funds amount to about $286,000, and the income for 1912-13 for educational purposes was $156,426. The library contains about 30,000 volumes. The president is S. M. Newman, A.M., D.D.

HOWLAND, HENRY ELIAS. An American jurist, died November 8, 1913. He was born in Walpole, N. H., in 1836, graduated from Yale University in 1854, and from the Harvard Law School in 1857. He was admitted to the bar and began practice in New York City. He served in the Civil War in 1862 and 1863, leaving the service with a rank of captain, and resumed practice in New York. In 1873 he was appointed judge of the Marine Court. He served as a member of the board of aldermen, and as president of the department of taxes in New York City. In 1892 he was made a fellow of the Yale Corporation, and labored unceasingly for the advancement of the university. He took an interest in charitable and civic work, and for many years was president of the Manhattan State Hospital for the Insane. He was also president of the Society for the Preservation of the Adirondacks, and in 1901 led the fight against the spoliation of the forests by contractors; was the president of the University Club of New York City from 1901 to 1904; and also president of the Century Association and of the New England Society of New York City. He was one of the best-known after-dinner speakers in the United States. He contributed many articles on legal and other subjects to magazines.

HUERTA, VICTORIANO. Provisional president of the republic of Mexico. He was born in 1857 of aristocratic parentage, and in 1875 entered the government military school at Chapultepec. At this institution he spent four years, and after his graduation in 1879 at once joined a coast regiment. Between that date and the year 1891 little is known of his career. Most of these years were spent in routine military service in which he had attained a rank of lieutenant-colonel, and was in command of a military station in the interior of the country. While filling this duty, he became conspicuous for his promptness in putting down the brigands who at this time infested the interior of the country. His success in accomplishing this task came to the notice of President Diaz, and Huerta was ordered to report at the palace in the city of Mexico. On his arrival he is said to have been told by Diaz to choose what post he liked best under the war department. He asked to be appointed chief of the geographical department, and on his appointment to this position he again left the city, and for ten years was engaged in going from one end of Mexico to the other, studying the location of rivers, plateaus, mountain ranges, and becoming thoroughly acquainted with every section of the country. It is said that in 1902 he possessed more intimate, personal knowledge of Mexico than any other living man. He finished this survey and map-making work with the rank of a brigadier-general, and continued to occupy important positions in the army under President Diaz, on the resignation of the latter, in 1912, becoming one of the strongest supporters of President Madero. He was placed by the latter in command of the national troops in the city of Mexico at the time of the outbreak of the revolution under Felix Diaz (see MEXICO). On the conclusion of an arrangement between him and Diaz, he abandoned Madero, and took command of the movement against the former president. He was elected provisional president of the republic, and shortly after he had come into power, Madero was shot while being transferred from the presidential palace to a prison. Enemies of Huerta placed the direct responsibility of Madero's murder on Huerta's shoulders, while his supporters declared that the occurrence was an accident, in which Huerta had no part. The United States government, however, refused to recognize Huerta as president. (See MEXICO, *History;* and UNITED STATES, *History.*)

HUGHES, RAYMOND MOLLYNEAUX. An American chemist and educator, appointed in 1913 president of Miami University. He was born at Atlantic, Iowa, in 1873, and graduated from Miami University in 1893. From 1895-97 he was fellow in chemistry at the Ohio State University, taking the degree of M.Sc. From 1898 to 1904 he was professor of physics and chemistry at Miami University. From 1904 to his election to the university presidency, he was dean of the College of Liberal Arts, and from 1908 was acting president.

HUGHES, WILLIAM. An American public official, elected United States senator (Democratic) from New Jersey in January, 1912. Born in Ireland in 1872, he moved with his parents to the United States; was educated in the common schools and in a business college; he served in the 2nd New Jersey Volunteers in the Spanish-American War; studied law and was admitted to the bar in 1900; and practiced in Patterson. In 1903 he was elected to the 58th Congress and was reëlected to the 60th, 61st, and 62nd Congresses. He was a successful candidate for the senatorship in the senatorial primaries held in September, 1912. In this contest he had the support of Woodrow Wilson, then governor of New Jersey.

HUNGARY. See AUSTRIA-HUNGARY.

HUNTING, WILLIAM. See VETERINARY SCIENCE.

HUSSEIN, NAZIM PASHA. A Turkish soldier and public official, assassinated January 23, 1913. Born in Constantinople in 1848, his military studies were begun in Turkey and finished at St.-Cyr, in Paris. During the Russo-Turkish War he was made chief of staff. A friend of Sultan Abdul Hamid, he still fell under suspicion of taking too lively an interest in politics, and was denounced, arrested, publicly degraded and sentenced to five years' solitary confinement in a fortress. There he studied the literature of his profession and accumulated a store of modern military knowledge. After the expiration of his term of imprisonment, he remained for two years under strict guard, but finally succeeded in escaping, and made his way to Batum, arriving there in time to hear of the outbreak of the revolution of the young Turks in 1908. From Batum he worked his way as a stoker to Constantinople. He was received with open arms by the committee of union and progress, and on the proclamation of the constitution was appointed in command of the 2nd army corps at Adrianople. There he was largely responsible for the strength of the fortifications which enabled the city to hold out so long before surrending to the Bulgarians. In February, 1909, he was appointed minister of war by Kramil Pasha, taking the place of Ali Riza. This led to a struggle between the committee of union and progress and the Grand Vizier, which resulted in the latter's overthrow. Nazim Pasha had become unpopular with some of the leaders of the Young Turks, who disliked his attempts to keep politics out of the army. It was largely through Nazim's influence that order was maintained in Constantinople during the "counter-revolution" which followed the overthrow of the cabinet of Hilmi Pasha. From this time until the beginning of the war with Italy, the Young Turks were supreme, and Nazim was kept practically a prisoner. He was afterward sent as a Vali to Bagdad. In this city with his customary energy he set on foot a scheme for reorganization. Armed with practically unlimited power and with the help of 150 officers whom he took with him, he restored order in the most vigorous fashion and inaugurated many works of public utility. The Jackson barrage contract, which he was instrumental in bringing about, was not ratified in Constantinople, and Nazim was recalled, in spite of the collective resignations of 125 of his officers, the protests of citizens of Bagdad, and the offer of the sheikhs of Mesopotamia to put their armed forces at his disposal. On his return to Constantinople in May, 1911, the committee of union and progress, realizing their mistake, made him president of the army council, and in June, 1912, he was appointed minister of war in the cabinet of Mukhtar Pasha. At the outbreak of the war with the Balkan states he appointed Abdullah Pasha to the chief command in Thrace, but after the defeat of Lule Burgas decided to command there in person. It was he who resolved on the retirement to the lines of Tchataldja. He showed inexhaustible energy in supervising the defense of the lines. He was not considered a brillant soldier, but it was universally admitted that he was an honest man. This made him a conspicuous figure in military circles. For details of his assassination, see the article TURKEY.

HUTCHINSON, SIR JONATHAN. An English physician and scientist, died June 2, 1913. Born in 1828, at the age of sixteen he left school and became apprentice to a surgeon in the city of York, under whose direction he attended lectures in the medical school there. In 1850 he became a student in St. Bartholomew's

Hospital, London. After remaining there for four years, he received an appointment at the Metropolitan Free Hospital. He soon became one of the best-known surgeons in London. In 1862 he made known his great discovery that a destructive form of eye disease in children, which had long been called *Stumous ophthotmis*, and was attributed to a supposed scrofulous constitution, was in reality a consequence of inherited syphilis. This discovery was the first step toward the general recognition of the part played by syphilis in producing many forms of diseases. He also made researches in leprosy, and he was the first to associate that disease with the use of badly cured fish. In 1899-1900 he visited South Africa, in 1901 Ceylon, and later other countries in the course of his leprosy researches. In 1889 he was appointed president of the Royal College of Surgeons. His published writings include: *Rare Diseases of the Skin; The Pedigree of Disease; Illustrations of Clinical Surgery.*

HYDRO-AEROPLANES. See Aeronautics.

HYDROGEN BORIDES. See Chemistry.

HYDROPATHY. The practise of an extinct sect of medicine based upon the substitution of water for drugs. See Hydrotherapy.

HYDROPLANE. See Aeronautics.

HYDROTHERAPY. Formerly used to denote the external use of ordinary water in the treatment of disease, hydrotherapy now includes balneology, which covers all use of bathing waters, plain or mineralized, for medical treatment. The use of healing springs dates back to remote antiquity. The ancient temples, dedicated to the worship of Æsculapius, were erected near mineral springs, and these localities became, it is believed, centres of early medical instruction. Peale is authority for the statement that for five centuries mineral waters were the only medicines used in Rome. It is said that in that city alone there were at one time 800 thermæ. Of their existence in Rome we find abundant evidence to-day, in their most interesting and impressive ruins. Remains of Roman baths are found very widely separated in all parts of the former Roman empire.

Many large volumes are devoted to the explanation of methods of employment of water as a remedial agent, in the form of complete and partial baths, ablutions, douches, affusions, compresses, packs, irrigating apparatus, sweat-, steam cabinet-, hot air-, electric light-, sand-, or moor-baths, etc. They are variously used in acute infectious fevers; in diseases of the nervous system; of the muscles and of the joints; of the heart and circulatory apparatus; of the digestive organs; of the urinary apparatus; of the genitals; and of the skin.

Mineral springs are of value according to their constituents, for drinking or bathing. Many are thermal (warm or hot), as at Carlsbad, Nauheim, Baden-baden, Vichy, Banff, Las Vegas, Hot Springs, Ark., and Hot Springs, Va. Many are non-thermal (cold), as at Harrogate, Wiesbaden, Franzenbad, Kissingen, Manitou, and Saratoga Springs. Waters of either of these two classes may be divided into alkaline, alkaline-saline, saline, acid, or neutral. These subclasses are susceptible of further subdivision into sodic, lithic, iodic, magnesic, chalybeate, etc., or combinations of these appellations, may be used, as "sodic-calcic-chalybeate," etc. Many thousands repair annually to the well-known European mineral springs for treatment. In 1911 there were 34,793 visitors at Nauheim; in 1912 there were 118,000 bathers at Vichy; and in 1913 there were 70,000 at Carlsbad. The American spas, with the exception perhaps of Hot Springs, Ark., have had, compared with the English and continental spas, very small patronage, probably for the reason that many of their waters lack carbonic acid gas in any therapeutic amount, or because they are under private control. The United States government developed Hot Springs, Ark., to a limited extent, but not at all to compare with foreign spas. During 1913, however, a renaissance occurred there, the officials having asked the government for $50,000 to use in studying the therapeutic effect of the waters. Hot Springs, Va., under a private corporation, is a very fashionable resort for those in search of gay life and sports, as well as health; and fashion is a strong competitor of medicine. A new bath house was projected by the management, to be under the direction of Dr. Guy Hinsdale, the well-known climatologist and hydrotherapeutist, and was to be erected in 1914. The most remarkable awakening in the United States occurred at Saratoga, where the State of New York acquired from more than thirty owners over a hundred springs of varying constituency, but all supersaturated with carbonic acid gas, and also a park of 250 acres. See Saratoga Springs.

HYGIENE. Sex Hygiene. The question as to how far instruction in sex hygiene should be given in the public schools received widespread attention during the year 1913. A special writer in the *Journal of the American Medical Association* for October 18, 1913, summed up public opinion as expressed in the editorial columns and correspondence of various representative newspapers. The general trend seems to be against such instruction. The subject naturally divides itself into three questions: (1) Should children and adolescents be instructed in sex hygiene; (2) if so, should instruction come through parents, through a religious medium, through the public schools, or through books, pamphlets, and leaflets; and (3) what is the best form in which it can be presented to the youthful mind? Among the newspapers voicing disapprobation of such instruction in public schools was the Fort Worth (Texas) *Record*, which seriously doubted the wisdom of any attempt of education in the public schools on this delicate question. It regarded the subject as too sacred to be the topic of careless and common discussion among the bold and irreverent young Americans that make up the school population. The Philadelphia *Ledger* regarded the present agitation as a passing fad, attributable to the zeal of the ultra-progressives who would reform the world by legislation. The *Ledger* summed up its argument against sex hygiene as follows: They (the young) need a healthier attitude on the part of all teachers of biology, hygiene, and physical instruction, but the teachers opposing sex hygiene instruction have a more correct attitude of mind toward these subjects than have the advocates of the plan which the *Ledger* regards as a course "full of perilous and demoralizing possibilities." The attitude of the Roman Catholic Church was reflected in an editorial in *America*, which characterized the project as "the newest and most dangerous of all educational fads now being daily foisted on us." In the judgment of *America*, improvement must come through bettering social conditions rather than through specific instruction of school children. "Let the hygienists put away the countless seductions which assail mankind and womankind on all sides, and they will effect something. Let the young have less desire, not more knowledge; strength of will, not complete information." A correspondent of the New York *Independent* denounced the idea as the "most vicious of all the wild, indiscreet, and dangerous suggestions made in behalf of the human race." Many newspapers assumed a waiting and philosophical attitude, recognizing that the question was still *sub judice*. The Chicago *Record-Herald's* views on the outcome of reform movements and controversies were especially interesting. It held that sex hygiene as a course of study was undoubtedly coming in this country. The really significant fact was that so many educators, social workers, physicians, and moralists had been converted to the idea in such a short space of time. The results it was willing to leave to the future. The journal's article concluded that, while public interest in the subject was unquestioned, it was not a matter to be settled by heated controversy, but by calm and judicious consideration. Above all, it was not a matter to be controlled by the "fringe of fanatics which hang on the outskirts of every reform movement" in the phrase of Theodore Roosevelt. See also EDUCATION IN THE UNITED STATES, *Sex Hygiene*.

PUBLIC HYGIENE. U. S. Senate Document No. 1072 contains a summary of government expenditures during 1912 for public health and medical purposes, collected in accordance with a resolution introduced by Senator Works. Following is a recapitulation by departments, showing the manner in which the total of nearly twenty million dollars was spent. The State Department is credited with $36,000 expended for health purposes, but $19,999.28 went to meet the expenses of the Ninth International Conference of the Red Cross Society, and $10,163.64 was disbursed for the International Congress for Hygiene and Demography; $2,830.55 went to maintaining the International Sanitary Bureau, and $3,015.62 to the International Office of Public Health at Rome. Of the $1,904,703.04, disbursed by the Treasury Department for health purposes, $747,638.32 was for salaries and traveling expenses of the medical officers of the public health service, $14,892.80 went to the hygiene laboratory. Other items were $367,797.41 to marine hospitals, $414,592.85 to the quarantine service, $326,057.38 toward preventing epidemics in the United States, Porto Rico, Hawaii, and the Philippine Islands, $30,065.11 for the leprosy investigation station in Hawaii. The medical expenditures of the War Department ($5,714,109.69) were devoted to the work of the medical corps and the construction of army hospitals. The navy bureau of medicine and surgery spent $3,730,522.88. The Isthmian Canal commission cost $1,620,391.12. The bureau of Indian affairs is credited with an expenditure of $395,388.71 for health purposes, although the commissioner says in his report that the only specific appropriation available for sanitary work among the Indians is $60,000 for relieving distress among them. The Department of Agriculture spent $3,090,403.29 in the Department of Animal Industry, while the Bureau of Chemistry, charged with enforcement of the pure food law, spent only $782,263.02. These sums were all charged to health purposes, although the Bureau of Animal Industry is a commercial organization to increase the value of farm products. The only items in the schedule, according to the analysis in the *Journal of the American Medical Association*, which could fairly be charged against the public health activities of the government in the United States were $1,533,256.46 of the appropriation for the public health service, which was actually spent for public health purposes; $782,263.02 spent by the Bureau of Chemistry in enforcing the food and drug act; and $105,195.47 required to operate the division of vital statistics of the Census Bureau. The fact is, that instead of the Federal government expending $19,800,086.23 last year for public health purposes, it actually spent $2,420,614.95.

HYGIENE, SCHOOL. See EDUCATION IN THE UNITED STATES.

HYGIENE, SOCIAL, BUREAU OF. See BUREAU OF SOCIAL HYGIENE.

ICELAND. A Danish crown colony, with an area of about 40,456 square miles, of which only 16,245 square miles are inhabited. The total population of the inhabited regions in 1911 was 85,183. There were in 1910 in the country 44,815 horses, 26,338 cattle, 578,634 sheep, 660 goats. The total imports in 1911 were valued at 14,123,000 kroner (11,480,052 kr. in 1910) and the exports at 15,691,000 kr. (13,510,355). The principal exports in 1910 were salt cod, 6,753,711 kr.; fish oil, 1,646,020; wool, 1,246,242; salt mutton, 966,823; fish other than cod, 714,486; skins, 580,258; refuse from the whale fisheries, 375,528; horses, 252,882; butter, 263,269. Tonnage entered in 1910, 125,155. The responsible executive is the minister for Iceland (1913, H. Hafstein), residing at Reikjavik.

IDAHO. POPULATION. The population of the State in 1910 was 325,594. According to the report of the Bureau of the Census, made in 1913, the population then was 378,818.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	14,000	448,000	$ 305,000
	1912	12,000	394,000	276,000
Wheat	1913	510,000	14,094,000	8,879,000
	1912	510,000	14,566,000	9,613,000
Oats	1913	325,000	15,112,000	4,836,000
	1912	348,000	17,017,000	5,956,000
Rye	1913	3,000	66,000	38,000
	1912	3,000	66,000	40,000
Potatoes	1913	34,000	5,780,000	2,890,000
	1912	35,000	6,475,000	1,878,000
Hay	1913	705,000	a2,044,000	14,717,000
	1912	692,000	1,938,000	12,209,000

a Tons.

MINERAL PRODUCTION. The output of the metal mines of the State in 1913 showed a remarkable increase over the production of the previous years, and exceeded that of the record year, 1906. The value of the gold, silver, copper, lead, and zinc produced was over $23,500,000, an increase of over $2,000,000, or nearly 10 per cent. over the production of 1912, when the total value of the mineral products of the State was $21,816,390, as compared with $19,441,545 in 1911. In 1913 record productions were made in silver, lead, and zinc, and substantial increases were made in the output of all metals except gold, which made close to the yield of 1912, the production for 1913 being $1,373,000. The mine yield silver output increased 20 per cent., or from 8,294,745 ounces in 1912 to about 9,970,000 ounces in 1913. The copper output increased from 7,492,152 pounds in 1912 to about 9,312,000 pounds in 1913, an increase of over 24 per cent. The lead mine production increased from 284,000,000 pounds in 1912 to about 311,000,000 in 1913, or over 9 per cent. The zinc ore produced increased the spelter output from 13,905,502 pounds in 1912 to about 23,594,000 pounds in 1913, an increase of nearly 70 per cent.

The gold production of the State in 1912 was valued at $1,381,214, compared with $1,372,387 in 1911. The deep mines produced $749,185 in gold, chiefly from gold and gold-silver siliceous ores, but also as a by-product from lead and copper ores. The placers produced $632,029, of which about 76 per cent. was obtained by dredging. Boisé County led in the gold output with $502,277, and was followed by Owyhee County with $289,255.

The production of silver in Idaho in 1912 increased to 8,294,745 fine ounces, from 8,196,136 ounces in 1911. Considerable increase was made in the output of copper ores, and a large decrease from siliceous ore. The bulk of the output of silver in Idaho is from the lead ore of the great Cœur d'Alêne mines in Shoshone County, which in 1912 produced 6,650,000 ounces of silver.

In 1912 there were 7,182,185 pounds of blister copper produced in the State, compared with 4,514,117 pounds in 1911. The State has made a small and irregular output of copper since 1884, but only since 1903 has it been a steady and important producer. To the close of 1912 it had a recorded output of 66,253,985 pounds. The Cœur d'Alêne district furnished most of the copper output of 1912, and was the most productive copper district in the State. The State contains many promising copper districts, but owing to the lack of development or poor transportation facilities they have not been active.

Idaho produces a small amount of coal. The total production in 1912 was 2319 short tons, valued at $6663. This is mined from a few scattered lignite beds, and is used locally.

Transportation. The total mileage of all the railways in the State on January 1, 1913, was 2642. The railways having mileage of 100 miles and over are the Oregon Short Line, 1227; Northern Pacific, 329; Chicago, Milwaukee, and Puget Sound, 180; Oregon-Washington Railroad and Navigation Company, 135; Spokane International Railroad Company, 122; Great Northern Kootenai Valley Railway, 105. The total valuation of the railway systems in the State in 1913 was $84,506,573.

Education. The total enrollment in public schools in 1912 was 84,902. The average daily attendance was 66,359. The teachers numbered 2710. The average salary of men and women teachers was $78.04 monthly. There are in the State, in addition to the common schools, an Academy of Idaho, which is the technical school of the State; the Albion State Normal School; State School for the Deaf and Blind; the Idaho Industrial Training School; the Lewiston State Normal School; and the University of Idaho (q.v.).

Finance. There was a balance on January 1, 1913, of $1,171,794. The receipts for the fiscal year 1913 were $2,659,207, and the disbursements $2,658,551, leaving a balance at the close of the fiscal year of $1,171,451. The chief expenditures were for expenses of the State government and the maintenance of State institutions. The chief sources of income were from general tax levies, receipts from the secretary of State's departments, interest on current funds, and receipts from sundry other departments. The bonded indebtedness of the State on December 31, 1913, was $2,421,450.

Charities and Corrections. The only correctional institutions in the State are the Idaho State Penitentiary at Boisé, and the Industrial Training School at Saint Anthony. The State maintains no charitable institutions entirely, but coöperates with the Children's Home Finding Society, at Boisé.

Politics and Government. The State legislature met in 1913, and passed a number of important measures which are noted in the section *Legislation* below. The term of the governor expires on January 4, 1915, and the next State election will be held on November 3, 1914. On January 14 William E. Borah was reëlected to the United States Senate.

More than local interest was aroused by the conviction and sentence to imprisonment for contempt of court of the editor of the Boisé *Capital News* on January 2. This conviction was the result of the publication in this paper of a severe criticism of the decision of the Supreme Court, which in 1912 prevented the Progressive party from putting on the official ballot the names of their candidates. The decision resulted from a peculiarity of the Idaho election law. This law does not in any way mention the subject of presidential electors. The lists of Republican and Democratic electors for the election of November 5, 1912, were put upon the ballot under a provision dealing with the election of "constables and other officers." The court in its decision held that the electors were not State officers, and that decisions of the United States Supreme Court had declared that they were not national officers. The statute was construed by the Idaho court in a manner which prevented the Progressive candidates for national electors being put on the ticket by petition. The only way in which citizens could vote for Progressive presidential electors was to write in their names on the ballot. This decision resulted in widespread criticism, and the Boisé *Capital News* published a communication from Mr. Roosevelt, written before the election, in which he commented adversely on the decision. The publication of this comment, together with other criticisms made in this paper, resulted in the conviction and fining of the editor.

Legislation. The legislature met in 1913 and passed many important laws. These included a measure creating a public utilities commission; an act providing for mothers' pensions; a measure permitting a commission form of government for cities of over 15,000 inhabitants; a law providing for non-partisan judiciary primary elections; the insurance law of the State was revised; a blue-sky law was passed, and a State highway commission was created. The legislature provided for a constitutional amendment to be submitted to the people. This provides for five justices of the Supreme Court instead of three. At the election of November, 1912, amendments to the constitution providing for initiative and referendum were carried, and also recall, except as to judicial officers. Acts to carry these measures into effect were passed by the legislature. Contrary to the action of California and Arizona legislatures, the legislature of Idaho repealed sections of the existing law prohibiting Chinese or persons of Mongolian descent, not born in the United States, from acquiring land. An eight-hour law for workmen of public works was passed by the legislature. The two houses of the legislature joined in a memorial to Congress, reciting the letter written by President Taft on October 11, 1912, to the governors of States, showing that farmers pay an average of eight and one-half per cent. interest on borrowed capital in the United States, as against three and one-half or four and one-half per cent. in Europe. The memorial requested Congress to enact a law permitting the organization of national land-mortgage banks with the power to guarantee debenture bonds of coöperative credit associations, with such limitations and restrictions as will insure practical uniformity in the laws of the States in the matter of establishing rural credit banks and similar institutions. For liquor legislation, see LIQUOR REGULATION.

STATE GOVERNMENT. Governor, John M. Haines; Lieutenant-Governor, H. H. Taylor; Secretary of State, W. L. Gifford; Treasurer, O. V. Allen; Auditor, F. L. Huston; Attorney-General, J. H. Peterson; Superintendent of Education, Grace M. Shepherd—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, George H. Stewart, Rep.; Associate Justices, James F. Ailshie, Rep.; Isaac N. Sullivan, Rep.; Clerk, I. W. Hart.

STATE LEGISLATURE, 1913. Republicans: Senate, 21; House, 56; joint ballot, 77. Democrats: Senate, 3; House, 4; joint ballot, 7. Republican majority: Senate, 18; House, 52; joint ballot, 70.

The State representatives in Congress will be found in the section *Congress* in the article UNITED STATES.

IDAHO, UNIVERSITY OF. A State institution founded at Moscow, Idaho, in 1892. The total enrollment for the year 1912-13 was 763. The faculty including lecturers, extension workers, and teaching force numbered 73. In 1913 the university in common with the other higher educational institutions of the State was placed under the control of a newly constituted State board of education and particularly under the State commissioner of education. The United States Department of Agriculture in 1913 designated the university as the location of one of its laboratories for the investigation of forest by-products, and has appointed an expert chemist to assist the university department of forestry in research along this line. The endowment of the university in 1912-13 amounted to $789,005, and the total receipts for the year to about $254,539, all of which was derived from legislative grants, from interest on endowment, and from the Federal government. The library contains about 32,000 volumes. The president is Melvin Amos Brannon, Ph. D.

ILKESTON, WALTER FOSTER, First Baron. An English baron and physician, died January 31, 1913. He was born in 1840; educated at Trinity College, Dublin; from 1868 to 1892 was professor of medicine at Queens College, Birmingham; and from 1868 to 1890 physician to the general hospital in that city. In 1885-6 he was a member of Parliament from Chester. In 1887 he again entered Parliament and retained his seat until 1910, in which year he was created baron. His published writings include *The Use of Sphygmograph in Heart Diseases* (1886); *Method and Medicine* (1870); *Clinical Medicine* (1874); *Political Powerlessness of the Medical Profession* (1883); *Public Aspects of Medicine* (1890).

ILLINOIS. POPULATION. The population of the State in 1910 was 5,638,591. According to the report of the Bureau of Census, made in 1913, the population in that year was 5,904,043.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	10,450,000	282,150,000	$177,754,000
	1912	10,658,000	426,320,000	174,791,000
Wheat	1913	2,240,000	41,888,000	36,024,000
	1912	1,183,000	9,819,000	8,641,000
Oats	1913	4,375,000	104,125,000	39,568,000
	1912	4,220,000	182,726,000	54,818,000
Rye	1913	49,000	808,000	525,000
	1912	48,000	768,000	538,000
Potatoes	1913	125,000	5,750,000	5,118,000
	1912	137,000	13,837,000	8,302,000
Hay	1913	2,500,000	[a] 2,450,000	34,545,000
	1912	2,512,000	3,266,000	41,152,000
Tobacco	1913	800	[b] 560,000	64,000
	1912	900	684,000	62,000

[a] Tons. [b] Pounds.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $123,068,867, compared with $106,275,115 in 1911. The total coal production in 1912 was 59,885,226 short tons, valued at $70,294,338. This production was the largest ever attained in the State, and exceeded the previous maximum, 53,679,118 tons made in 1911, by 6,206,108 tons. The biennial shut-down of the mines for the adjustment of the wage scale took place on April 1, 1912. The miners were given an advance of five cents a ton, and work was generally resumed after an idleness of from 30 to 60 days. Illinois ranks third among coal-producing States in value; however, the coal produced in Illinois ranks second, for although it was surpassed in 1912 by West Virginia, 6,941,461 tons, the value of the output of Illinois exceeded that of West Virginia by 7,502,104 tons. There are more coal-producing counties in Illinois than in any other State of the Union. Half of the 102 counties in the State are producers of coal, and the coal miners of Illinois are probably better organized than those of any bituminous coal-mining State. The result of this has been the establishment throughout the coal-mining region of the eight-hour day. Notwithstanding nearly half the coal produced is mined by machines, the total number of men employed in the mines in 1912 was 78,098. These worked an average of 194 days. Idleness due to strikes or suspensions affected the total of 60,505 men who lost an average of 33 days. According to the United States Bureau of Mines, the number of fatalities in and about the State in the coal mines in 1912 was 159, compared with 172 in 1911. Of the 159 killed in 1912, 141 were underground, three were in shafts, and seven on the surface. The coal output of the State in 1913 was estimated by the United States Geological Survey to have exceeded the production of 1912 by approximately 7 per cent. The increase would have been considerably larger but for the exceptionally mild weather in the latter part of the year, which lowered the demand for household fuel. The increased output was due in part to the strike in Colorado, which caused a movement of Illinois coal farther west during the last three months of the year. Labor conditions in the State were generally less troublesome than in 1912, although a number of small strikes occurred during the year.

The petroleum production declined in 1912 to 28,601,308 barrels from 31,317,038 barrels in 1911. The maximum production was in 1908, when 33,686,238 barrels were produced. Indications pointed to the discovery of new fields in Lawrence County. In August, 1912, a 600-barrel well was drilled near Allendale in Waubash County. The total number of wells completed in the State in 1912 was 1260.

Illinois ranks third in the manufacture of pig iron. There were in 1912 2,887,359 long tons, compared with 2,108,002 in 1911.

Illinois is one of the chief States in the manufacture of clay products. The total value of this product in 1912 was $15,210,990, an increase of $877,979 over 1911. The principal product is common brick.

EDUCATION. The school population of the State, ages 6 to 21, on June 30, 1913, was 1,582,180. The enrollment in the public schools was 1,010,215. The total number of teachers was 30,565, of whom 24,956 were women and 5609 were men. The average annual salary for men teachers was $772.70, and for women teachers, $643.70. The amount expended for all school purposes was $37,923,943. The legislature of 1913 passed many important measures relating to education. These included a million-dollar addition to the State distributive fund, making a total of $3,000,000; a certificating bill which placed Illinois in the front rank; a free high school tuition bill; and a law permitting local school boards to levy two per cent. instead of one and a half per cent. for operating expenses, when authorized by vote of the people. The position of State high school inspector was also created by this legislature.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State with their population in 1913 are as follows: American State School and Colony, 1516; Soldiers' Orphans' Home, 323; Kankakee State Hospital, 3045; Dunning State Hospital, 2466; Soldiers' Home, 1587; Anna State Hospital, 1657; Jacksonville State Hospital, 1711; School for the Deaf, 371; School for the Blind, 193; Elgin State Hospital, 1678; Chester State Hospital, 621; Industrial School for the Blind, 104; Eye and Ear Infirmary, 210; Watertown State Hospital, 1504; Geneva School for Girls, 417; St. Charles School for Boys, 541; Soldiers' Widows' Home, 77; Peoria State Hospital, 2195. There has also been authorized by the legislature a State hospital for the insane at Alton. The construction had not begun in 1913. A colony for epileptics was also created by the legislature in 1913. The location has not yet been settled upon. The total appropriations for the institutions mentioned above for the two years beginning July 1, 1913, were approximately $13,000,000. The charities of the State are under the control of the Illinois State Charities Organization.

FINANCE. The total receipts from all sources for the fiscal year ending September 30, 1913, amounted to $14,040,736. The disbursements for the same period were $14,424,363. At the beginning of the fiscal year there was in the treasury a balance of $5,499,210, and at the close of the fiscal year a balance remaining, $5,115,583. The chief sources of revenue are State tax, inheritance tax, Illinois Central Railway, and fees collected by the different State departments. The chief expenditures are for the national guards, for the University of Illinois, for normal schools, for State charitable and penal institutions, for the salaries of State officers and employes, and members of the legislature. The State has no bonded debt.

TRANSPORTATION. The total mileage including main lines and branches in the State on June 30, 1913, was 12,094. The total mileage for railways included in and passing through the State was 77,838. During 1913 36.02 miles was added to the mileage.

POLITICS AND GOVERNMENT. The legislature passed an unusual number of important measures. These are mentioned in the section *Legislation* below. There was no election for State officers in 1913, as the term of Governor Dunn does not expire until January, 1917. The next State election is November 3, 1914. As the result of the election in November, 1912, the House of Representatives in 1913 was composed of 52 Republicans, 73 Democrats, 25 Progressives, and 3 Socialists. The Progressives held the balance of power, and as a result, there was a deadlock in the election of officers which lasted from January 1 to the last week in that month. The result was the election of William McKinley, the speaker, by a combination of Democrat and Republican votes. He received 46 of the 50 Republican votes. Mr. McKinley has been identified with the Democratic State machine, of which the leader is Roger Sullivan. He had the reputation, however, of being free from entangling alliances, and he was indorsed by the voters' league. He established himself under a policy of reform under the rules of the House. Another deadlock in the legislature resulted from an attempt to elect two United States senators, one to succeed Senator Cullom, whose term expired on March 4, and the other as successor to Senator Lorimer, who was excluded from the Senate in 1912. The deadlock resulted from the fact that no one party had a majority as the Progressives had elected a sufficient number of members of both houses to prevent such a majority. A situation was thus created which made it necessary for party lines to be obliterated if there were to be any election. Compromise was finally arranged on March 26, by which James Hamilton Lewis, Democrat, was elected for the long term of six years from March 4, 1913, and Lawrence Y. Sherman, Republican, was elected for the unexpired portion left vacant by the exclusion of Senator Lorimer. Mr. Sherman is known as a Progressive Republican, and it was thus possible for him to be a successful compromise candidate. On May 5 the Senate passed a measure giving women in the State the right to vote for certain officers. On June 11, this bill was passed by the House and was signed by the governor. The bill gives to all women who are citizens of the United States and 21 years old, the right to vote for nominees of all officers in the State who are created by statute. Its limitations prevent women from voting for governor, United States senators, representatives to Congress, members of the legislature, and nearly all judges. Leaders of the woman suffrage movement in the State at once began efforts to bring about a constitutional convention, by which these limitations may be removed.

A committee of the Senate headed by Lieutenant-governor O'Hara carried on investigation into wages paid to women. The conclusions of this committee created much discussion. In general, the committee decided that low wages was the main cause of vice among women. During the continuance of these investigations charges of morality were brought about Lieutenant-governor O'Hara, but he was exonerated. On September, 1913, primary elections for judiciary candidates were held. These showed in general a falling off in the Progressive vote. At the judiciary elections held on October 20, Judge Puterpaugh, Republican, candidate for the fifth district, was defeated largely through the voting of women. C. C. Craig was the successful opponent. At the local option elections held on November 3, 18 out of 24 cities and towns voted "no license." The results were largely brought about by votes of women who voted four to one against saloons. As a result of the local option election held in the preceding April, 70 per cent of the State became dry.

Chicago. Elections for minor city officers were held in 1913. On February 25, candidates of the Democratic machine controlled by Roger Sullivan, were elected. Investigations in alleged corruption in the police department were conducted in the early part of the year, and on January 4, police were found guilty of forming a bribe fund. A court for delinquent girls was organized on March 4. On June 26, the board of education voted against school lectures on sex hygiene. Investigation carried on during the first six months of the year resulted in the establishment of the fact that an arson trust, similar to that found in New York City, existed in Chicago. Members of this alleged trust were indicted on July 28. On August 1, Mayor Harrison appointed women on the police force. A strike of the street cleaners was begun on July 3. On December 10, members of the board of education refused to elect Mrs. Ella Flagg Young superintendent of schools. The removal of Mrs. Young aroused great indignation. On December 12, the resignation of five members who voted against her were accepted by the mayor. At another meeting of the board of education, Mrs. Young was reinstated on December 3. On October 4, announcement was made that the surface car lines of the city were to be merged under one control. During December, there were an unusual large number of unemployed in the State. Inquiries were carried on by a committee of unemployed men appointed by Governor Harrison, showing that many employes were laid off and on half time, as a result of business conditions.

Legislation. The legislature met in 1913 and enacted several important measures. Perhaps the most important of these was the measure extending the suffrage to women to the extent of voting for presidential electors, university trustees and various county, township, and municipal officers. Measures were passed also providing for mothers' pensions and the municipal ownership of public utilities. A public utilities commission was created. This supersedes the board of railroad and warehouse commissioners, and it is modeled in general after the New York public utilities commission. A new workmen's compensation act was passed, and primary election laws were amended in many respects, including provision for presidential preference, primaries, and for the selection of members of controlling committees of political parties and delegates to political conventions. See also **Liquor Regulation**.

State Government. Governor, Edward F. Dunne; Lieutenant-Governor, B. O'Hara; Secretary of State, Harry Woods; Treasurer, J. Ryan, Jr.; Auditor, James J. Brady; Attorney-General, P. J. Lucey; Adjutant-General, Frank S. Dickson; Superintendent of Public Instruction, Francis G. Blair; Superintendent of Insurance, Rufus Potts—all Democrats except Blair, Rep.

Judiciary. Supreme Court: Chief Justice, George A. Cook, Democrat; Associate Justices, Alonzo K. Vickers, Republican; Wm. M. Farmer, Democrat; F. K. Dunn, Republican; Chas. C. Craig, Democrat; James H. Cartwright, Republican; O. N. Carter, Republican; Clerk of the Court, J. McCan Davis, Republican.

State Legislature, 1913. Republicans: Senate, 25; House, 52; joint ballot, 77. Democrats: Senate, 24; House, 73; joint ballot, 97. Progressives: Senate, 2; House, 25; joint ballot, 27. Socialists: House, 3; joint ballot, 3.

The representatives in Congress will be found in the section *Congress*, article **United States**.

ILLINOIS, University of. A State university for higher learning at Urbana and Chicago, Ill., founded in 1867. The total enrollment in all departments of the university in the autumn of 1913 was 5259. Colleges of liberal arts and sciences, engineering, agriculture, music, law, and the graduate school are at Urbana. The colleges of medicine, dentistry, and pharmacy are in Chicago. In the school of liberal arts and sciences there were 1516; in the school of engineering 1151; the school of agriculture 908, and the school of music 78. In the law school were 106; in the graduate school 268; in the school of medicine 445; in the school of dentistry 94; and in the school of pharmacy 255. The faculty numbered 700. In 1912-13 Thomas Jonathan Burrill, professor of botany and vice-president of the university, retired on a pension of the Carnegie Foundation. Samuel W. Shattuck, professor of mathematics and comptroller, also retired on a pension of the Carnegie Foundation. Guy Stanton Ford, professor of European history, resigned to become dean of the graduate school of the University of Minnesota. Kendrick Charles Babcock, formerly specialist in higher education in the Bureau of Education at Washington, was appointed dean of the college of liberal arts and sciences. There were several other important changes in the faculty during the year. The total income of the university in 1913-14 was estimated at $2,744,231, of which $2,286,500 is from State appropriations. The university received during the year the entire capital stock of the College of Physicians and Surgeons in Chicago, a private corporation which formerly owned the site (land and buildings) on which the university conducted its college of medicine and dentistry. By this donation the ownership of the property was transferred to the University of Illinois. Another gift received during the year 1912-13 was one of $12,000 from Hon. William B. McKinley. This is to be used as a loan fund to undergraduates. The library contains 215,000 volumes. The president is E. J. James, Ph.D., LL.D.

ILLUMINATING GAS. See CHEMISTRY, INDUSTRIAL.

IMMIGRATION AND EMIGRATION. The immigration into the United States for the fiscal year ended June 30, 1913, was 1,197,892 aliens, compared with 838,172 in 1912. The increase occurred chiefly in the months from July to November, 1912, each of these months recording more than 50 per cent. increase. Some increase, however, was shown for each month of the year, the smallest being 6 per cent. in March, 1913. In addition to the 1,197,892 aliens of the immigrant class, there were 2,293,335 of the non-immigrant class, making a total of 1,427,227. The non-immigrants are those whose stay in the United States is temporary. The departures during 1913 numbered 611,924 aliens, 308,190 of whom were emigrant and 303,734 of the non-emigrant class. A net gain in population by immigration, therefore, was 815,303, compared with 401,863 for the fiscal year 1912 and 512,085 for the fiscal year 1911. While immigration increased in 1913 43 per cent. over the total for the preceding year, the rejections for the former year were 19,938, compared with 16,057 for 1912.

CLASSIFICATION OF ALIENS. The occupations of aliens entering and leaving the country are divided into three groups—professional, skilled, and miscellaneous. Of common, unskilled laborers, 25,542 entered and 278,115 departed, as against arrivals of members of skilled trades aggregating 192,978 and departures of the same aggregating 74,449. Of the total number of immigrant aliens admitted in 1913, 808,144 were males and 389,748 females; 986,359 were between ages of 6 and 14, and 44, while 147,158 were under 14 and 74,379 were 45 or over. Of those admitted, 269,988 could neither read nor write, and 5386 could read but not write. The percentage of admitted aliens shown by these figures to be illiterate is, therefore, 26 per cent.

SOURCES OF IMMIGRATION. The sources of immigration in 1912 and 1913 are shown in the table at top of next column.

From this table it will be noted that in 1913, 182,886 immigrants came from northern and western Europe, and that 896,553 came from eastern and southern Europe and western Asia.

SOURCES OF IMMIGRATION IN THE FISCAL YEARS 1912 AND 1913

Race or People	1912	1913
African (black)	6,759	6,634
Armenian	5,222	9,353
Bohemian and Moravian (Czech)	8,439	11,091
Bulgarian, Servian, and Montenegrin	10,657	9,087
Chinese	1,608	2,022
Croatian and Slovenian	24,366	42,499
Cuban	3,155	3,099
Dalmatian, Bosnian, and Herzegovinian	3,672	4,520
Dutch and Flemish	10,935	14,507
East Indian	165	188
English	49,689	55,522
Finnish	6,641	12,756
French	18,382	20,652
German	65,343	80,865
Greek	31,566	38,644
Hebrew	80,595	101,330
Irish	33,922	37,023
Italian (north)	26,443	42,534
Italian (south)	135,830	231,613
Japanese	6,172	8,302
Korean	33	64
Lithuanian	14,078	24,647
Magyar	23,599	30,610
Mexican	22,001	10,954
Pacific Islander	3	11
Polish	85,163	174,365
Portuguese	9,403	13,566
Rumanian	8,329	13,451
Russian	22,558	51,472
Ruthenian (Russniak)	21,965	30,588
Scandinavian (Norwegians, Danes, and Swedes)	31,601	38,737
Scotch	20,293	21,293
Slovak	25,281	27,234
Spanish	9,070	9,042
Spanish-American	1,342	1,363
Syrian	5,525	9,210
Turkish	1,336	2,015
Welsh	2,239	2,820
West Indian (except Cubans)	1,132	1,171
Other peoples	3,660	3,038
Total	838,172	1,197,892

From Italy came 265,542; from Russia, principally southern Russia including Finland, 291,040; from Austria, 137,245; from Hungary, 117,580; from Greece, 222,817; from Turkey in Europe, 14,128; and from Turkey in Asia, 23,955; from England came 43,363; from Ireland, 26,876; from Scotland, 14,220; and from the German Empire, 34,229. During 1913 10,629 aliens, physically, mentally, or morally below the legal standard, were returned to the country of origin. Of these, 2564 had grave physical defects, 750 grave mental defects, 4208 physical or mental defects not so serious, but affecting ability to earn a living, and 1474 morally defective. During the year 1624 alien contract laborers were debarred.

JAPANESE IMMIGRATION. The number of Japanese admitted to continental United States in 1913 was 6771, and to Hawaii 4901; compared with 5358 admitted to continental United States and 3231 to Hawaii in 1912. In 1913, 6859 applied for admission to continental United States, of whom 288 were debarred. Those admitted consisted of 2837 former residents, 3083 parents, wives, or children of residents, and 739 new arrivals.

CHINESE EXCLUSION. During 1913 5662 Chinese were admitted, as compared with 5374 in 1912. At San Francisco, 3896 Chinese arrived; at Seattle, 1286; at Vancouver, 407; and at Honolulu, 797.

New immigration stations were completed

during the year at Galveston, New Orleans, and Charleston.

Restriction of Immigration. The elaborate measure designed to restrict and improve immigration, which was passed by the Sixty-second Congress, was vetoed by President Taft. The President's objection to the bill was its inclusion of the so-called illiteracy test. According to the provision of the bill any alien immigrant physically capable of working and otherwise eligible must, before being admitted to the United States, read in the presence of an immigration official forty words in some language or dialect. The reading test provided was such that the alien would not know in advance what forty words he would be expected to read. Certain aliens were to be excused from this provision. These included political refugees and certain members of an eligible immigrant family. The question over which there was much discussion both by the public press and in the arguments before President Taft was whether such a test was beneficial to the country. The objection to the literacy test was not that it tended to limit immigration, but that it failed to provide any method by which the desirable immigrants were differentiated from the undesirable ones. It was argued that the ability to read forty words was not proof of intelligence, and that inability to read forty words was not proof of unintelligence. The opponents of the test argued further that a literacy test is not a test of moral character, and that it would exclude many hard-working, industrious men who could add to the country's wealth by their labor, and admit many undesirable persons who were of a higher order of mental attainment. This was the view taken by President Taft, and for this and other reasons, which he stated in full, he vetoed the bill. The veto of the President was sustained by Congress. In the Senate his objections were overruled by more than the two-thirds vote required, but in the House the vote was 213 to 114, which was five less than the required two-thirds. As the opponents of the bill on its original passage were fewer than half of those who voted against it on the question of sustaining or overruling the President's veto, it was evident that the House was strongly affected by the arguments against a test of literacy.

This measure was again introduced in the Sixty-third Congress, but no action had been taken at the end of the year.

Castro and Mylius. The case of two aliens aroused much interest during the early part of the year. Both of them attempted to enter the United States, and both were for a time prevented by the public authorities from so doing. One of these was Cipriano Castro, a former president of Venezuela, who had been in exile from his own country as a result of a revolution which drove him from power. In addition to political matters in which he was involved, he was charged with having directed the killing of a man named Peredes. Castro was detained at Ellis Island for several weeks, pending an examination into the facts of the case and the interpretation of the immigration laws as regarded him. According to the immigration authorities before whom the hearing was held, he virtually acknowledged the truth of the accusation of murder by refusing to answer questions. The immigration officials therefore declared that he was not admissible and excluded him. Castro secured counsel, and an appeal was taken to the United States District Court. This court reversed the decision of the immigration authorities, and decided that under the law Castro was admissible, and should not be excluded.

The other case was that of Edward T. Mylius, who had been convicted in England of the crime of libeling King George by the publication of a statement alleging that the latter had been married prior to his marriage to Queen Mary. As he had been convicted of a crime, the question in his case was whether the crime he committed involved moral turpitude. The immigration authorities decided that he was inadmissible, but the District Court on appeal reversed this opinion. The court in its decision did not deny that the circulation of a libelous story about a man involves moral turpitude; but it declared that a man who publishes a paper that circulates such a libelous story may not know that the paper contained such a story, and therefore, though he may be convicted of libel, he may be guilty merely of negligence and not of a crime. It may be stated that Mr. Mylius was the publisher of a Socialist paper which contained the libelous statement, but that he himself had not written it. The court did not say that Mylius was ignorant of what his paper published, but merely that the immigration authorities could take into consideration only the fact of his conviction, and could not go behind the returns to ascertain the nature of the particular crime he committed.

In both these cases the court practically stated that the immigration authorities could not go behind the returns, and that since neither Castro nor Mylius made explicit admission of crime, it was beyond the power of the officials to accept their silence and behavior under examination as equivalent to such admission.

INCANDESCENT LAMPS. See Electric Lighting.

INCINERATORS. See Garbage and Refuse Disposal.

INCOME TAX. See Taxation.

INDETERMINATE SENTENCE. See Penology.

INDIA, British. British India is that part of East India governed by the British sovereign (as emperor of India) through the governor-general of India in council. India, as defined by the British Parliament, includes British India and the native states under British suzerainty. The seat of government of British India was removed from Calcutta to Delhi in 1912.

Area and Population. The area of India, that is, the area covered by the last census (1911), is stated at 1,802.192 square miles. British territory is divided into fifteen local, or rather provincial, governments. Interprovincial transfers of territory, and transfers from native to British territory, and *vice versa*, occasionally take place, so that censuses as originally reported are subject to adjustment. The table below shows in detail the area of British India and the native states, and the population according to the censuses March 15, 1901, and March 10, 1911. The population returned at these censuses, and the areas, have been adjusted, as far as possible, to allow for subsequent interprovincial transfers. Manipur state, which was included under British territory in 1901, is included under native states in the 1911 census. The tribal areas in the North-West Frontier Province are now shown under native states. Sikkim, which in 1901 was classed under Bengal states, is now shown separately. The area newly included within the scope of the 1911 enumeration had a population (for the most part estimated) of 1,731,116; of this number, 1.604,265 were returned from the agencies and tribal areas of the North-West Frontier Province. The province of Eastern Bengal and Assam (erected from Eastern Bengal and the province of Assam October 16, 1905) and the province of Bengal were reconstituted and erected into three provinces April 1, 1912. These provinces are Bengal (which received the style "presidency"), Bihar and Orissa, and Assam. Still another new province, Delhi, was erected October 1, 1912, out of the division of Delhi in the Punjab; its area is stated at 557 square miles, and its population 391.828 (these figures subject to revision).

The population of the French and Portuguese settlements is not included in the table. A French census of March 10, 1911, returned 282,472 inhabitants. A census of the Portuguese settlements was taken December 31, 1910, showing a population of 604,930. The independent Himalayan states of Nepal and Bhutan (the foreign relations of Bhutan are under British control) are geographically a part of India; their population is not known with certainty, but may be estimated at 3,000,000 for the former and 250.000 for the latter. If these figures be included, the population of India becomes about 319.270,000; or, if Burma and Aden be included as not being geographically a part of India, the total is about 307,109,000. The approximate accuracy of these totals is in considerable doubt on account of the widely varying estimates for Nepal.

The area censused on March 10, 1911, and the population on that date, as compared with the census returns of March 15, 1901, are as follows (the figures being adjusted, as far as possible, to subsequent interprovincial transfers):

	Sq. m.	Population 1901	Population 1911
Provinces:			
Ajmer-Merwara...	2,711	476,912	501,395
Andamans and Nicobars	3,143	24,649	26,459
Assam	53,015	5,841,878	6,713,635
Baluchistan	54,228	382,106	414,412
Bengal (Pres.)....	78,669	42,141,477	45,483,077
Bihar and Orissa.	83,181	33,242,783	34,490,084
Bombay (Pres.)..	123,059	18,559,650	19,672,642
Bombay *	75,993	15,304,766	16,113,042
Sind *	46,986	3,210,910	3,513,435
Aden *	80	43,974	46,165
Burma	230,839	10,490,624	12,115,217
Central Provinces and Berar....	99,823	11,971,452	13,916,308
Coorg	1,582	180,607	174,976
Madras (Pres.)...	142,330	38,229,654	41,405,404
North-West Frontier Province..	13,418	2,041,534	2,196,933
Punjab (incl. Delhi Province)	99,779	20,330,337	19,974,956
United Provs. of Agra and Oudh	107,267	47,692,277	47,182,044
Agra †	83,109	34,859,109	34,624,040
Oudh †	24,158	12,833,168	12,558,004
British India..	1,093,074	231,605,940	244,267,542
Native States and Agencies:			
Assam St. (Manipur)	8,456	284,465	346.222
Baluchistan Sts...	80.410	428,640	396,432
Baroda State.....	8,182	1,952,692	2,032,798
Bengal States.....	5,393	740,299	822,565
Bihar and Orissa States	28,648	3,314,474	3,945,209
Bombay States...	63,864	6,908,559	7,411.675
Central India Ag.	77,367	8,497,805	9.356.980
Central Prov. Sts.	31,174	1,631,140	2.117.002
Hyderabad St.....	82,698	11,141,142	13.374.676
Kashmir St.......	84,432	2,905,578	3.158.126
Madras States....	10,084	4,188,086	4.811.841
Cochin ‡	1,361	812,025	918.110
Travancore ‡ ...	7,129	2,952,157	3.428.975
Mysore State.....	29,475	5,539,399	5.806.193
N.-W. F. Prov. (agencies, etc.)	25,500	83,962	1,622.094
Punjab States....	36,551	4,424,398	4,212.794
Rajputana Agency	128,987	9,853,366	10,530.432
Sikkim	2,818	59,014	87.920
United Provs. Sts.	5,079	802,097	832.036
Native States.	709,118	62,755,116	70,864.995
Total India...	1,802,192	294,361,056	315,132,537

* Included in the Bombay Presidency. † Included in the United Provinces. ‡ Included in the Madras States.

From 1891 to 1901 the increase of population in British India was 4.7 per cent., while in the native states there was a decrease of 5 per cent.; there being for India an increase of 2.5 per cent. From 1901 to 1911 there was an increase in British India of 5.5 per cent. and in the native states 12.9 per cent.; the increase for India being 7.1 per cent. The largest decrease, as shown by the 1911 census, was in the Baluchistan states—7.5 per cent.; this, however, is only apparent, as the figures for 1901 were based on an estimate which now appears excessive. The largest increase was in the North-West Frontier Province agencies and tribal areas—1831.9 per cent.; this enormous percentage is due to extension of the censused area. The greatest decrease in British India, as shown by the 1911 census, was in Coorg—3.1 per cent.; and the greatest increase in the Central Provinces and Berar—16.2 per cent. Oudh showed a decrease of 2.1 per cent., and Burma and Assam increases of 15.5 and 14.9 per cent., respectively. If the Baluchistan states and the North-West Frontier Province agencies and tribal areas be omitted as not being representative of the facts, the only decrease, in the population of native states as shown in 1911, was in the Punjab states—4.8 per cent. The greatest increase was in Sikkim—49.0 per cent. The Central Province states showed an increase of 29.8 per cent., and Hyderabad and the Bihar and Orissa states increases of 20.0 and 19.0 per cent., respectively. Of the total population in 1911, about 78 per cent. was in British India, and about 22 per cent. in the native states. Males numbered 161,326,110, and females 153,806,427.

The census shows the population according to civil condition in the case of 312.643,693 persons; of these, the unmarried numbered 78.384,686 males and 52,516,947 females; married, 72,906,881 and 73,704,162; widowed (including divorced), 8,709,755 and 26,421,262. As returned by the 1911 census, married males up to the age of five numbered 151,518, and married females 302,425; between five and ten years, 810,577 and 2,219,778; between 10 and 15 years, 2,403,136 and 6,555,424; between 15 and 20 years, 4,364,438 and 10,087,024. The widowed included 6668 males and 17,703 females up to the age of five; between five and ten years, 35,098 and 94,270; between 10 and 15 years, 91,995 and 223,042; and between 15 and 20 years, 177,694 males and 466,834 females. Among the Hindus, the total widowed numbered 6.421,463 males and 20,030,136 females; almost one female in each five was a widow; among the Christians and Buddhists, the average was somewhat over one in nine.

The population of the larger cities, cities having over 100,000 inhabitants, with percentage of increase or decrease in the decade, was returned by the 1911 census as follows: Calcutta (Bengal), 896,067 (5.7 per cent. increase); Calcutta with suburbs, including Cossipur-Chitpur, Manicktola, Garden Reach, and Howrah, 1,222,313 (10.4); Bombay (Bombay), 979,445 (26.2); Madras (Madras), 518,660 (1.8); Hyderabad (Hyderabad), including Secundurabad, Bolaram, and the Residency Bazars, 500,623 (11.6); Rangoon (Burma), 293,316 (19.5); Lucknow (Oudh), 259,798 (1.6 per cent. decrease); Delhi (Delhi), 232,837 (11.6 increase); Lahore (Punjab), 228,687 (12.7); Ahmedabad (Bombay), 215.835 (16.1); Benares (Agra), 203,804 (4.4 decrease); Bangalore (Mysore), including civil and military station, 189,485 (19.1 increase); Agra (Agra), 185,449 (1.4 decrease); Cawnpore (Agra), 178,557 (12.0 decrease); Allahabad (Agra), 171,687 (0.2 decrease); Poona (Bombay), 158,856 (3.6 increase); Amritsar (Punjab), 152,756 (6.0 decrease); Karachi (Sind), 151,903 (30.2 increase); Mandalay (Burma), 138,299 (24.8 decrease); Jaipur (Rajputana), 137,098 (14.4 decrease); Patna (Bihar and Orissa), 136,153 (1.0 increase); Madura (Madras), 134,130 (22.2 increase); Bareilly (Agra), 129,462 (2.8 decrease); Srinagar (Kashmir), 126,344 (3.0 increase); Trichinopoly (Madras), 122.028 (16.5 increase); Meerut (Agra), 116,227 (1.6 decrease); Surat (Bombay), 114,863 (3.7 decrease); Dacca (Bengal), 108,551 (21.0 increase); Nagpur (Central Provinces), 101,415 (20.6 decrease); Jubbulpore (Central Provinces), 100.651 (11.2 increase); Howrah, included above with the Calcutta suburbs, 179,006 (13.6 increase). At the time of the 1911 census, plague was raging in Cawnpore and Nagpur, and many of the inhabitants were absent; the provisional returns of a new census taken after the epidemic had subsided showed the population of Cawnpore to be 195,498 and of Nagpur 134,712. In respect of the large increase shown above for Bombay, it should be noted that plague was raging there when the 1901 census was taken; the returns of a special census taken in 1906 showed a population of 959,537.

Religion. Population by religion according to the censuses of 1901 and 1911 is shown in the table below. That the 1911 total is 313,523,981 instead of 315,132,537 (the figure for total population returned by the census), is due to the fact that religion was not recorded in the case of 1,608,556 persons in the North-West Frontier Province.

	1901	1911	Inc.
Hindus	207,147,026	217,586,900	10,439,874
Sikhs	2,195,339	3,014,466	819,127
Jains	1,334,148	1,248,182	— 85,966
Buddhists	9,476,759	10,721,449	1,244,690
Parsis	94,190	100,100	5,910
Mohammedans	62,458,077	66,623,412	4,165,335
Christians	2,923,241	3,876,196	952,955
Jews	18,228	20,980	2,752
Animists	8,584,148	10,295,168	1,711,020
Others and unspecified	174	37,128	36,954
Total	294,361,056	313,523,981	....

Of the 3,876,196 Christians recorded in 1911, there were 1,490,864 Roman Catholics, 492,317 Angelicans, 413,142 Romo-Syrians, 336,596 Baptists, 225,190 Jacobite Syrians, 218,499 Lutherans, 181,128 Presbyterians, 171,754 Methodists, 135,264 Congregationalists, 75,848 Reformed Syrians, 52,407 Salvationists, and 18,780 Chaldæan Syrians. Of the Christians, 199,776 were recorded as Europeans, 101,657 as Anglo-Indian (Eurasian), and 3,574,830 as native. Most of the Buddhists—10,384,579—were in Burma. The census calls attention to its classification of Hindus and Animists. It points out that the term Animistic denotes the primitive forms of belief found among the jungle tribes, Mundas, Santals, Bhils, etc. There is no name for these beliefs in any Indian vernacular, and in practice it is difficult to draw the line between Hinduism and Animism. Persons who did not profess to belong to any recognized religion were entered under the name of their caste or tribe. In the course of tabulation all such persons were treated as Hindus if they belonged to a recognized Hindu caste, however low it might be. Those who belonged to jungle tribes outside the caste system, *e.g.* Bhils, Khonds, Garos, Todas, etc., were classed as Animists.

Education. In respect of literacy the 1911 census recorded 313,415,389 persons, as shown in the following table:

	Males		
		Literate	
	Total	Total	In English
Hindus	110,865,731	11,223,134	1,013,596
Sikhs	1,734,773	184,163	11,490
Jains	643,553	318,585	13,030
Buddhists	5,286,142	2,134,381	21.767
Parsis	51,123	39,995	25,334
Mohammedans	34,709,365	2,389,766	176,051
Christians	2,010,724	588,570	252,591
Animists	5,088,241	53,833	1,521
Others and unspecified	28,818	6,388	2,981
Total males	160,418,470	16,938,815	1,518,361
		Females	
Hindus	106,720,714	814,810	23,659
Sikhs	1,279,667	17,280	238
Jains	604,629	24,120	209
Buddhists	5,435,086	317,338	1,383
Parsis	48,973	31,218	8,347
Mohammedans	31,883,812	137,807	3,940
Christians	1,865,472	252,295	112,643
Animists	5,129,303	2,987	74
Others and unspecified	29,263	2,908	1,533
Total females	152,996,919	1,600,763	152,026
Total	313,415,389	18,539,578	1,670,387

Corresponding totals for 1901:

Males	149,442,106	14,154,602	1,021,319
Females	143,972,800	883,565	103,912
Total	293,414,906	15,038,167	1,125,231

The recent development of schools in British India is shown in the following figures relating to March 31, 1907, and March 31, 1912, respectively (figures for British Baluchistan are not included). Total public educational institution, 121,407 and 136,422; scholars, 4,750,081 and 6,135,351 (of whom females, 562,000 and 876,367). Private institutions, 41,283 and 40,025; scholars, 647,781 and 656,504 (of whom, females 60,490 and 77,622). Total public and private, 162,690 and 176,447 institutions; scholars, 5,397,862 and 6,791,855 (of whom, females 622,490 and 953,989). Public primary schools, 112,984 and 123,638; pupils, 3,940,706 and 4,990,668 (of whom, females 495,895 and 785,868). Public secondary schools, 5914 and 6392; scholars, 715,750 and 928,183 (of whom, 61,358 and 63,761). Public arts colleges, 137 and 141; students, 19,259 and 29,698 (of whom, females 160 and 279). Private elementary institutions, 37,572 and 37,388; pupils, 586,298 and 601,089 (of whom, females 59,317 and 75,722). Private advanced institutions, 3711 and 2637; scholars, 61,483 and 55,415 (of whom, females 1173 and 1900). Expenditure on public education in 1906-07, £3,734,207; in 1910-11, £4,801,578; in 1911-12, £5,250,922.

Agriculture. In British India in 1912, out of a total area of 618,605,938 acres, the area under forest was 80,851,369 acres; not available for cultivation, 149,605,179; cultivable waste other than fallow, 114,700,370; fallow land, 54,982,321; net area sown with crops, 215,981,683; area irrigated, 40,679,142. In 1912 the area under food grains was 195,097,434 acres (of which, rice 76,636,887 and wheat 25,025,236); oilseeds, 16,494,865; cotton, 14,568,189. The area under opium declined from 383,335 acres in 1911 to 220,164 in 1912.

The figures as returned for production are not strictly comparable with the areas sown, as they include crops in certain of the native states. Some of the more important yields for 1910-11 and 1911-12, respectively, are officially estimated as follows: Rice (cleaned), 557,938,000 and 521,992,000 cwt.; wheat, 10,040,500 and 9,813,500 tons; tea (calendar years). 263,605,240 and 268,823,436 lbs.; cotton, 4,303,000 and 3,925,000 bales (of 400 lbs.); jute, 7,932,000 and 8,234,700 bales (of 400 lbs.); linseed, 563,600 and 641,200 tons; rape and mustard, 1,233,200 and 1,271,000 tons; sesamum, 511,800 and 371,400 tons; groundnuts, 503,200 and 542,200 tons; indigo, 46,000 and 48,700 cwt.; cane sugar, 2,217,800 and 2,390,400 tons.

Minerals. As officially reported, the value in 1911 and 1912 and the quantity in 1912 of the chief minerals produced in British India and the native states are shown in the following table:

	1911	1912	1912
Coal	£2,502,616	£3,310,365	14,706,339 tons
Gold *	2,238,143	2,271,806	590,555 oz.
Petroleum....	884,398	975,278	249,083,518 gals.
Mang'ese ore	648,801	† 762,699	† 708,081 tons
Salt *	429,296	452,580	1,310,921 tons
Mica ‡	207,778	341,349	66,574 cwt.
Rubies	67,594	69,547	323,245 kt.
Jadestone §..	29,815	4,483	348 cwt.

* The figures for 1912 are provisional. † The figures represent exports by sea in 1912-13. ‡ The figures represent exports by sea in fiscal years. § The figures represent exports by sea and land in fiscal years.

Of the coal produced in 1912, the value of £1,813,408 is credited to Bihar and Orissa, and £1,063,437 to Bengal; of the gold, £2,158,362 to Mysore; of the petroleum, £962,907 to Burma, as well as the value of all the rubies and jadestone; of the mica, £292,645 to Bengal.

Commerce. The foreign trade of India, for years ended March 31, has been valued as follows, in thousands of pounds sterling:

	1908	1911	1912	1913
Sea-borne Trade				
Imports:				
Private mdse......	86,670	86,236	92,383	107,344
Government stores	4,429	2,901	3,654	3,744
Total mdse......	91,098	89,137	96,037	111,088
Private treasure..	21,880	26,445	35,615	34,132
Gov't treasure....	6,309	46	33	6,977
Total treasure..	28,190	26,491	35,647	41,109
Total imports...	119,288	115,628	131,684	152,197
Exports:				
Domestic produce.	115,727	137,081	147,878	160,775
Foreign produce..	2,512	2,841	4,018	3,160
Total	118,239	139,921	151,896	163,935
Government stores	85	53	96	86
Total mdse......	118,324	139,974	151,992	164,021
Private treasure..	3,631	4,745	6,908	4,697
Gov't treasure....	2	6	8	2,391
Total treasure..	3,633	4,751	6,916	7,088
Total exports...	121,957	144,726	158,908	171,109
Net exps. mdse...	27,225	50,837	55,955	52,933
Net imps. treas..	24,557	21,739	28,731	34,021
Excess exports...	2,668	29,098	27,224	18,912
Land Trade				
Imports:				
Merchandise	4,930	5,330	6,233	.....
Treasure	740	797	687	.....
Total imports...	5,670	6,127	6,920	7,660
Exports:				
Merchandise	4,076	4,326	5,274	.....
Treasure	566	624	612	.....
Total exports...	4,645	4,950	5,886	6,986

As in the preceding year, the import and export values in 1912-13 were of unprecedented magnitude. The total sea-borne trade increased over 11 per cent. Imports of cotton goods and sugar advanced notably. In the export trade, rice exceeded all records, taking first place over raw cotton. The bulk of the imports are manufactured articles, while about three-fourths of the exports consist of food and raw materials.

Values of the leading sea-borne imports of private merchandise in the fiscal years 1911-12 and 1912-13, respectively, were as follows, in thousands of pounds sterling: Cotton goods, 30,519 and 37,583; cotton yarn, 2527 and 2965; sugar, 7955 and 9537; iron and steel, 6717 and 7671; railway material, 2958 and 4269; machinery and millwork, 2838 and 3905; mineral oils, 2828 and 2505; hardware, cutlery, implements, etc., 2379 and 2434; apparel, 2355 and 2431; woolen goods, 2272 and 2039; silk goods, 1769 and 2035; copper, 1853 and 1581; provisions, 2127 and 2566; raw cotton, 1391 and 1483; carriages, carts, etc., 1056 and 1266; glass and glassware, 1029 and 1169; raw silk, 706 and 1143; spices, 1029 and 1087; instruments, apparatus, and appliances, 920 and 986; paper and pasteboard, 785 and 964; coal, coke, etc., 342 and 778; mineral dyes, 760 in 1912-13; drugs and medicines, 693 and 704; matches, 584 and 656. Among the imports of government stores were railway material 1680 and 1695, and metals 404 and 474.

Values of the principal sea-borne exports of Indian produce and manufacture were as follows in 1911-12 and 1912-13, respectively, in thousands of pounds sterling: Rice, 19,367 and 21,705; raw cotton, 19,683 and 18,741; cotton yarn and cloth, 6519 and 8134; raw jute, 15,038 and 18,034; jute manufactures, 10,671 and 15,247; seeds, 17,960 and 15,167; wheat and wheat flour, 9430 and 12,513; hides and skins, 9286 and 10,914; tea, 8631 and 8863; opium, 8726 and 7481; pulse, millets, etc., 5509 and 5982; raw wool, 1724 and 1756; lac (of all sorts), 1343 and 1409; coffee, 897 and 1043; wood and manufactures, 636 and 810; fodder, etc., 1140 and 757; manures (chiefly animal bone), 774 and 646; spices, 619 and 622; coal, coke, etc., 514 and 589; oils, 1072 and 572. Reëxports included: Cotton yarn and cloth, 1224 and 1098; raw wool, 250 and 448; sugar, 1155 and 145; metals, 153 and 133.

Percentages of imports and exports of merchandise by countries in the year 1912-13: United Kingdom, 63.0 per cent. of the imports and 25.1 per cent. of the exports; Germany, 6.4 and 10.1; United States, 3.2 and 7.8; China (including Hongkong), 1.9 and 8.4; Japan, 2.5 and 7.7; France, 1.3 and 6.5; Belgium, 1.9 and 5.4; Java, 5.8 and 1.3; Straits Settlements, 1.9 and 3.7; Austria-Hungary, 2.2 and 2.9; Ceylon, 0.5 and 3.7; Italy, 1.0 and 2.8; Mauritius, 2.0 and 0.6; all other countries, 6.4 and 14.0.

Shipping. The total number of vessels, including native craft, which entered, with cargoes and in ballast, from foreign countries at ports in British India in 1911-12 was 4481, of 8,354,877 tons; cleared to foreign countries, 4387, of 8,261.558 tons; total entered and cleared, 8868 vessels, of 16,616,435 tons. Total entered and cleared in 1912-13, 8737 vessels, of 17,451,985 tons. Of the latter tonnage, about 51 per cent. was from or to the United Kingdom and British possessions; and 77 per cent. of the total trade was under the British flag.

Communications. The length of railway open to traffic in British India and the native states has been as follows, at the end of each year: 1900, 24,752 miles; 1902, 25,930 miles; 1907, 30,010 miles; 1911, 32,839 miles; 1912, 33,484 miles. There were under construction or sanctioned on the latter date 2455 miles. Of the railway open to traffic at the end of 1912, 17,189 miles were on the 5½-foot gauge, 14,165 miles on the meter gauge, and 2130 miles on special gauges (2½ feet and 2 feet). Nearly all the railways are owned by the state and administered by a railway board, though many are leased to and operated by companies. Up to December 31, 1912, the capital outlay on lines open to traffic was £310,100,000 (against £300,045,000 at the end of 1911). Gross earnings in 1912 were: £41,100,000; working expenses, £20,106,000; net earnings, £20,994,000; percentage of working expenses to gross earnings, 48.92 (52.17 in 1911); percentage of net earnings on capital outlay, 6.77 (against 5.87 in 1911, 5.86 in 1907, 4.92 in 1902, and 4.99 in 1900). After charging to expenditure interest on capital outlay of lines under construction or provided for, the net gain to the state from the working of the railways was £5,489,000 in 1912 (against £2,713,000 in £1911, 2,552.000 in 1907, £136,000 in 1902, and £58,000 in 1900). Rates are very low; in 1912 the average rate charged per passenger per mile was: first class, 1.19d.; second class, 0.55d.; intermediate class, 0.26d.; third class, 0.19d.; season and vendors' tickets, 0.12d. For freight, the average rate charged per ton per mile was 0.39d.

The mean mileage of the railways of India was, in 1913, 33,509, an increase of 989 miles. During the year there was a decrease in the earnings of some of the railways, notably the North-Western State, the East Indian and the meter-gauge portion of the Bombay, Baroda, and Central India. There were, however, substantial increases on the broad-gauge portion of the last-named line, and on the Eastern Bengal State Railway, the Great Indian Peninsula Railway, and the Burma Railway. In Eastern Bengal the state had constructed four lines including the approach to the Lower Ganges Bridge, amounting to 84 miles; and in the Northwestern district four lines, comprising 195 miles, with a train ferry on the trans-Indus line. There were under construction on the Oudh and Rohilkhund, the Cawnpore-Bandah, with the Summerpore-Belatal branch of 140 miles, making a total of 419 miles for state railways. The private companies showed a construction as follows: Two lines in Assam-Bengal, 72 miles; Bengal and North-Western, three lines, 102 miles; Bengal and Nagpur, seven, making up a total of 453 miles; the Bengal-Nagpur and East Indian, the second section of the Bokaro-Ramgarh line, 30 miles; the Bombay, Baroda, and Central India, two lines, 80 miles; the East Indian Railway, the Katna-Barharwa, of 103 miles; and a short nine-mile branch also had been constructed. The Great Indian Peninsula Railway Company was completing its Itarsi-Nagpur line and a branch to the Pinch Valley coalfields, and other lines, totaling 385 miles. One 16-mile line was being constructed by the Rohilkhund-Kumaon Company, and a 113-mile line through the Jullundur Doab by the Southern Punjab, while the Dwari Theria, a line 19 miles in length, was building. The Jhenidah and Taranga lines were constructing two lines 37 and 18 miles, respectively, while a line 55 miles in length, which was characterized as a famine feeder was under construction from Dharmapuri to Hosur. In the native states the Gaek-war of Baroda was building some short lines aggregating 199 miles, while there were under construction the Bari-Tantpur line, 17 miles in length, on the Dolphur-Durbar Railway, and the Jodhpur-Phalodi, 80 miles in length, on the Marwar-Durbar system. In Burma the Southern Shan States Railway, 105 miles in length, was in progress.

On March 31, 1912, the government telegraphs aggregated 76,578 miles of line, with 299,343 miles of wire (including cable). The increase during the fiscal year was 1750 miles of line, with 7342 of wire. The capital expenditure up to March 31, 1912, was £7,639,201; the percentage for the fiscal year of net revenue on capital outlay was 1.70 (0.89 in 1910-11). Post offices on March 31, 1912, numbered 18,801; revenue for the fiscal year £2,134.279, expenditure £2,008,470.

Finance. The standard coin is the British sovereign, par value $4.86656; the current coin is the rupee, par value 32.444 cents (15 rupees to the pound sterling). For British India, the gross revenue and the expenditure charged to revenue, in thousands of pounds sterling, were as follows in years ended March 31 (revised estimates for 1913):

	1903	1908	1910	1911	1912	1913
Revenue..	65,297	71,003	74,593	80,682	82,836	87,052
Exp'ture..	62,229	70,697	73,987	76,746	78,895	83,659

In addition to expenditure charged to revenue, there is an expenditure on railways and irrigation (and since 1911-12 on the new seat of government at Delhi) charged against capital. This has been as follows in fiscal years, in thousands of pounds sterling: In 1903, 5128; in 1908, 11,413; in 1910, 7374; in 1911, 10,119; in 1912, 8523.

Gross revenue in years ended March 31 (revised estimates for the fiscal year 1913), in thousands of pounds sterling:

	1910	1911	1912	1913
Principal Heads of Revenue:				
Land revenue.........	21,332	20,878	20,765	21,326
Opium	5,535	7,522	5,961	5,114
Salt	3,320	3,176	3,391	3,337
Stamps	4,548	4,812	4,815	5,079
Excise	6,538	7,030	7,610	8,183
Provincial rates.......	539	554	549	557
Customs	4,965	6,619	6,469	7,008
Assessed taxes........	1,559	1,593	1,653	1,727
Forest	1,735	1,830	1,952	2,084
Registration	430	426	446	481
Tributes from Native States	588	607	595	603
Total	51,089	55,047	54,205	55,499
Interest	1,184	1,465	1,449	1,464
Post office.............	1,927	1,997	2,134	2,260
Telegraph	903	997	1,087	1,142
Mint	126	196	367	532
Civil departments.....	1,146	1,211	1,238	1,300
Miscellaneous	706	678	813	713
Railways (net).........	12,445	13,881	15,892	18,117
Irrigation	3,660	3,695	3,980	4,363
Other civil public works	269	294	327	316
Military department..	1,137	1,221	1,348	1,346
Grand total.........	74,593	80,682	82,836	87,052

Gross expenditure charged against revenue in years ended March 31 (revised estimates for the fiscal year 1913), in thousands of pounds sterling:

	1910	1911	1912	1913
Direct Demands *.....	8,860	8,856	8,670	8,732
Interest	2,115	2,169	2,038	1,808
Post Office	1,928	1,951	2,008	2,036
Telegraph	992	977	1,094	1,121
Mint	144	92	117	142
Civil Departments:				
Gen. administration...	1,656	1,756	2,626	1,928
Law and justice......	3,610	3,718	3,824	3,878
Police	4,222	4,352	4,603	4,653
Education	1,705	1,846	2,021	2,590
Medical	968	983	1,155	1,369
Political	875	1,095	968	1,003
Total, inc. other....	14,186	14,931	16,466	16,717
Superannuation	3,094	3,146	3,187	3,279
Famine relief and insurance	1,000	1,000	1,000	1,000
Ry. rev account †....	11,620	11,824	12,104	12,601
Irrigation	3,054	3,110	3,175	3,291
Military services......	20,249	20,486	20,902	20,982
Grand total, including other..........	73,987	76,746	78,895	79,585

* Direct demands on the revenue, viz.: refunds and drawbacks, assignments and compensations, and collection charges, including production costs in the salt and opium monopolies. † The working expenses of railways are treated not as expenditures, but as a deduction from revenue.

Net revenue and expenditure charged against revenue are shown by deducting departmental receipts, which are a set-off against expenditure, and interest charges and working expenses of railways and irrigation works, refunds and assignments, cost of cultivating and manufacturing opium, etc. Net revenue and net expenditure in years ended March 31, (revised estimates for the fiscal year 1913) have been as follows, in thousands of pounds sterling:

	1908	1910	1911	1912	1913
Net revenue...	43,209	49,620	55,147	56,987	60,685
" expend...	40,141	49,013	51,211	53,047	57,291
Surplus	3,068	607	3,936	3,940	3,394

The liabilities of British India on March 31, 1912, were: In England, £182,986.597; in India, Rs. 180,24,89,919 (£120.165,994); total, £303,152,591. The permanent debt, included in the foregoing, was: In England. £178,486,597; in India, Rs. 139,96,36,205 (£93,309,080). Total interest paid on all obligations in 1911-12, £9.884,812; of this, the interest on the debt was £9,282,229. From the latter amount should be deducted amounts chargeable to railways, £6,664.910, and amounts chargeable to irrigation, £1,182,867; whence the interest on the ordinary debt is £1,435,152. Interest on other obligations, £602,583.

ARMY. There is maintained in India an army consisting of British regular forces, Indian regular forces, various local corps, British volunteers, Indian army reserves, imperial service troops, and military police. In 1913-14 the British regular army was represented by the following units serving in India: Nine regiments of cavalry; 11 horse artillery batteries; 42 field artillery batteries; 3 howitzer batteries; 8 mountain batteries; 21 garrison artillery companies; 6 heavy batteries; 21 amunition columns; 52 battalions of infantry; details of the royal engineers; the royal army medical corps, etc., the total strength aggregating 77,318. The native army consists of three regiments of body guards, 39 regiments of cavalry, and the Aden troop; the corps of guides; 12 mountain batteries; one frontier garrison company; 26 companies of sappers and miners; 117 infantry battalions and 20 battalions of gurkhas. The Indian army had in its second line, the volunteers, about 35,400 strong, the imperial service troops maintained by the native states, the frontier militia on the southwest frontier, and the military battalions on that frontier, and in Assam and Burma. The imperial service troops are under the superintendence of British officers and are trained for service by feudatory princes. Thirteen states keep up forces of cavalry, 8 infantry, 3 sappers, 2 camel corps, and 6 transport corps, while in addition there are large armies in the native states which are considered of uncertain value, and are more or less irregular, both in organization and service. An approximate estimate of the total strength of the military forces available in India is as follows: British regular forces, 75,800; Indian regular forces, 162,000; volunteers, 35,400; Indian army reserves, 25,000; imperial service troops, 21,000; local corps, 5000; military police, 28,500; total, 352,700. The two great commands were the Northern army, under Lieutenant-General Sir James Willcocks, K. C. S. I.; K. C. M. G., and the Southern army, under Lieutenant-General Sir John Nixon, K. C. B.

GOVERNMENT. The king of Great Britain and Ireland is emperor of India. King George V. was crowned emperor at Delhi, December 12, 1911. In England the administration of Indian affairs is intrusted to the secretary of state for India (a member of the British cabinet), who is assisted by a council. In all matters he can impose orders on the government in India, and no expenditure from Indian revenue is legal unless sanctioned by the secretary of state in council. In respect of the relations of the Indian government to foreign powers or to the native states, in making peace and war, and in other matters that may require secrecy, the secretary of state may act independently of the council. The secretary of state for India in 1913 was the Marquis of Crewe (from November, 1910). In India the supreme executive authority, in both civil and military affairs, is the governor-general in council, known as the "government of India." In 1913, the governor-general, who is appointed by the crown for five years, was Baron Hardinge of Penshurst, who succeeded the Earl of Minto, November 23, 1910. The governor-general's council consists of six members (appointed by the crown) besides himself and the commander-in-chief of the army. One of the members (since 1909) is an Indian. The governor-general's legislative council, in accordance with the Indian councils act of 1909, consists of 28 official and 32 non-official members (including 27 elected), in addition to ex-officio members. The governors of Madras, Bombay, and Bengal, and the lieutenant-governor of Bihar and Orissa have each an executive council of three members (including one Indian); and legislative councils simliar to the governor-general's legislative council are established in these provinces and in the Punjab, the United Provinces of Agra and Oudh, Burma, Assam, and (since November, 1913) the Central Provinces and Berar. British India is divided into fifteen local governments and administrations, viz: Under governors (who are appointed by the crown), the provinces of Madras, Bombay, and Bengal (properly styled presidencies); under lieutenant-governors (who are appointed by the governor-general, with the approval of the secretary of state), the provinces of Bihar and Orissa, the United Provinces of Agra and Oudh, the Punjab, and Burma; under chief commissioners (who are under the immediate authority of the governor-general in council), the Central Provinces and Berar, Assam, Ajmer-Merwara, Coorg, British Baluchistan, the North-West Frontier Province, Delhi, and the Andamans and Nicobars. The chief local governments have a large measure of financial and administrative independence, which was further extended in 1912. The governors of Madras, Bombay, and Bengal have precedence over the other provincial executives, being alone permitted to communicate directly with the secretary of state.

The native states are governed by their princes, ministers, or councils, but the government of India, through British residents or agents, exercises control in varying degrees and does not permit the states to maintain external relations. The states are not allowed to make war or peace, but are entitled to British protection. British-Indian law does not obtain in them, and they are not under the jurisdiction of the British provincial courts.

HISTORY.

PLOTS AGAINST THE GOVERNMENT. Rarely has a year passed in which so much has been written on the subject of British rule in India; the plans for an Indian educational system, the administration of the civil service, the fiscal policy of the government, the attempt to Europeanize Indian politics, the alleged inefficiency of British officials—all have been subjected to keen and caustic criticism. Why? Because in spite of the magnificent irrigation works, in spite of the railways, in spite of school subventions, in spite of commerce, in spite of all the material benefits of European civilization, and in spite of the best efforts of university-bred British officialdom, the mass of the Indian people remain ungrateful and in their midst the work of revolutionary propagandists is ceaselessly carried on. There are Mohammedans, who resent the spoliation of Turkey and blame Great Britain for consenting to it; more numerous but less active are the Hindus who fear lest their ancient traditions and institutions will be destroyed by British railways, British soldiers, and British schools; and then there are men of either or neither religion who call themselves nationalists and hope to see India a proud, independent nation rather than a country under foreign masters. The Indians are not grateful; they would often prefer to live in their villages undisturbed by railways, and they feel that the material benefits of foreign rule are enjoyed mostly by the not wholly altruistic foreigners.

These disquieting considerations were brought to the fore by a number of incidents, among which the most prominent was the attempted assassination of the viceroy on the occasion of his state entry into Delhi, December 23, 1912. It was not astonishing that Lord Hardinge should have been seriously wounded, but it is significant that the crowd allowed the assassin to escape. Perhaps it is even more significant that instead of regarding the incident as closed, the Legislative Council thought it necessary to pass a conspiring bill for the punishment of future offenders. On his next visit to Delhi, Lord Hardinge was more cautious. His soldiers and agents cleared the streets, strangers were not allowed to approach him, and guards were stationed along the railway for a hundred miles.

It is unnecessary here to mention the "dacoities" or gang-robberies, and the murders of police-officers; they are nothing new in India. An instance of Mohammedan unrest is worth noting, however, especially since the misfortunes of their brother Mohammedans, the Ottoman Turks, have awakened the liveliest sympathy among the Indian Mohammedans. At Cawnpore the authorities decided that in order to improve a roadway a couple of religious edifices must be partially demolished. One of these, a Hindu temple, was spared because of protests. The other, a mosque, could be saved by no entreaties. On July 1 the road-builders proceeded to tear down the vestibule or annex of the Machli Bazaar Mosque, while police with fixed bayonets held off an angry crowd. On July 17 the Mohammedans held an indignation meeting to petition Lord Hardinge, the viceroy, for the restoration of the building. Nothing was done, however, and while the agitation was spreading all over India, the Mohammedans of Cawnpore grew bolder. On August 3 they started to replace the bricks of the mosque vestibule, and refused to be driven away until the police fired a volley into the crowd, killing thirteen and wounding twice as many. In an attempt to soothe the outraged feelings of the Mohammedans, Lord Hardinge visited Cawnpore, made a conciliatory speech, released the 100 rioters who had been imprisoned, and told the Mohammedans that in place of the old structure, they could build an arcade over the street. The compromise was well-meant, but not entirely satisfactory; as the Mohammedans of Calcutta later declared, the question at stake was not the convenience of a few worshippers at Cawnpore, but the right of the state to encroach upon and to profane religious property.

The Budget. In March, Sir Guy Fleetwood Wilson presented his financial statement to the Legislative Council and announced that the surplus had exceeded his estimates by £2,000,000. Out of abnormally large receipts from opium, extraordinary grants of £460,000 and £2,157,800 had already been made in aid of education. In the budget for 1913-14 he counted upon a surplus of £1,311,200 over an estimated expenditure of £83,850,000; although the opium revenue is certain to fall off and poor crops, or a business panic, might seriously impair the other items of income. It is interesting to note in this connection, that including the provision in the present budget, the government will have invested about £35,000,000 in large irrigation works. By the end of 1913 50,000 miles of canals had been constructed to irrigate 48,500,000 arable acres, and a return of £1,793,300 had been secured on the capital invested.

Imperial Preference. A notable discussion of the possibility of establishing a preferential tariff for India took place on March 17 in the Legislative Council. Commenting on the Unionists contention—that "Preference would offer to India free entry for her tea, coffee, sugar, wheat, etc., into the United Kingdom and the colonies (which, by the way, absorb 75% of India's commerce); while to Great Britain it would mean that India's import duties on some British manufactures would be abolished or reduced"—Sir Guy Fleetwood Wilson seriously questioned the value of a protective tariff for India, inasmuch as it must press with uncompensated weight on the agricultural poor. Should the United Kingdom join the movement for imperial preference, and India find it advisable to follow, a readjustment of the tariff for revenue would be necessitated and would quite possibly involve the raising of a higher tariff wall against non-imperial imports.

Education. A desire to see "spread over the land a network of schools and colleges" had been expressed by the emperor on January 6, 1912; and that desire lay at the basis of the policy enunciated by the newly organized Department of Education in its resolution of February 21, 1913. In a general way, the government intended generously to subsidize the provincial educational systems, without interfering too much with the traditions and preferences of the provincial authorities. Grave concern was felt for the moral influence of the schools, and religious instruction was recognized as essential to the making of good citizens; nevertheless the government, being neutral in religious affairs, could initiate no definite policy in religious instruction. To be sure, aid was to be given certain native schools of a religious character, but chiefly because of the financial impossibility of establishing new schools everywhere. Compulsory primary education was not at present to be thought of; on a voluntary basis, however, the widest possible extension was desired. Secondary schools were to be encouraged and subsidized, but left under private management with governmental supervision. In regard to the education of girls, the government solicited advice. And finally, the colleges were to be encouraged, so that it would be unnecessary for the young men of India to get their higher training abroad.

Indians in the Dominions. The inferior status of Hindu immigrants in Australia, Canada, and South Africa caused much resentment in India. Hindu settlers in Canada are frugal and thrifty, and cannot understand why Canada should not grant them the franchise or allow them to send for their wives. They disliked the continuous journey clause of the Canadian alien law by which Indian immigrants are practically though not explicitly excluded. In South Africa the unwillingness of the Indians to be treated as "undesirables" led to a strike of the Asiatic laborers in Natal, which is discussed in the article on South Africa, *History*. The strikers received hearty sympathy, and the more substantial aid of some $30,000 from the home country. In fact, so vigorous was the movement in India for equal rights for Indian emigrants, that the viceroy repeatedly remonstrated with the imperial government against the policy of South Africa and Canada, and in a speech at Madras said that "they [the strikers in Natal] have the deep and burning sympathy of India and also of those who, like myself, without being Indians sympathize with the people of the country."

Other Events. A punitive expedition sent against the head-hunters of the Naga Hills destroyed three native villages. The Mysore government created a new department to encourage industrial and commercial enterprise. Mian Jogindra Singh succeeded Bhawami Sen as Rajah of Mandi State, one of the most important of the Hill States within the Punjab.

INDIANA. The population of the State in 1910 was 2,700,876. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 2,760,782.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	4,900,000	176,400,000	$105,840,000
	1912	4,947,000	199,364,000	83,733,000
Wheat	1913	2,150,000	39,775,000	35,002,000
	1912	1,260,000	10,080,000	9,374,000
Oats	1913	1,700,000	36,380,000	13,824,000
	1912	1,990,000	79,799,000	23,940,000
Rye	1913	102,000	1,566,000	971,000
	1912	64,000	928,000	631,000
Potatoes	1913	75,000	3,975,000	3,339,000
	1912	87,000	9,918,000	4,959,000
Hay	1913	1,800,000	a1,800,000	25,380,000
	1912	1,885,000	2,582,000	29,435,000
Tobacco	1913	15,900	b11,925,000	1,312,000
	1912	18,700	14,960,000	1,346,000

a Tons. b Pounds.

Mineral Production. The total value of the mineral products of the State in 1912 was $42,239,193, compared with $37,430,187 in 1911. Coal was produced in the State to the amount of 15,285,718 short tons, valued at $17,480,546. This was an increase over the production in 1911, which was 14,301,355 short tons, valued at $15,326,808. The number of men employed in the coal mines of the State in 1912 was 21,651. These worked an average of 182 days, compared with 21,182 for the same number of days in 1911. About 54% of the coal produced is mined by machines. Strikes and suspensions in 1912 resulted in the idleness of 15,400 men for an average of 52 days. The total time lost was equivalent to 20% of the time made. According to the United States Bureau of Mines, forty lives were lost by accident in the coal mines of the State in 1912. Of these thirty-nine were underground, and one on the surface. One-half the deaths was due to falls of roof. The coal production of the State in 1913 was rather in excess of that of 1912, according to the United States Geological Survey.

The Indiana oil fields form a part of the Lima-Indiana fields. The production in Indiana itself in 1912 was 970,009 barrels, a decrease from the production in 1911 which was 1,695,289 barrels. A decline which had been noticeable for several years continued in 1912 not only in the heavy-oil district of the northeastern portion of the State, but in the Pike and neighboring counties in the southwest. The total number of wells completed in Indiana in 1912 was eighty-nine. Indiana is one of the most important clay-working States, ranking sixth in this respect. The total value of these products in 1912 was $7,935,251, an increase of $934,480 over 1911. Draintile is the principal clay product of the State.

Education. The school population of the State in 1913 was 762,927, and the enrollment was 537,500. The average daily attendance in the schools was 425,675. The total number of teachers employed was 18,085. The general assembly of 1913 passed a number of important measures relating to education. Many of these referred to the raising of funds. Provision was made for the establishment of township high schools, and for public playgrounds and public baths. A minimum wage for teachers was established and the qualifications for teachers were revised. Amendments were made to the law providing for compulsory education, and vocational education laws were amended.

Finance. The report of the treasurer for the fiscal year ending September 30, 1913, shows a balance in the treasury at the beginning of that fiscal year of $339,404. At the end of it the disbursements and receipts balanced at $12,032,600. The chief receipts are from taxes, and the chief expenditures for education, State officers, and State institutions. The total State debt at the end of the fiscal year was $1,470,163. Of this, $1,064,548 was domestic debt, and $405,615 foreign debt.

Charities and Corrections. The institutions in the care of the State with their population in 1913 are as follows: Central Hospital for Insane, Indianapolis, 1516; Eastern Hospital for Insane, Richmond, 831; Northern Hospital for Insane, Logansport, 911; Southern Hospital for Insane, Evansville, 788; Southeastern Hospital for Insane, Madison, 1044; Soldiers' Home, Lafayette, 933; Soldiers' and Sailors' Orphans' Home, Knightstown, 466; School for Feeble-Minded Youth, Fort Wayne, 1252; Village for Epileptics, New Castle, 208; Tuberculosis Hospital, Rockville, 113; School for the Deaf, Indianapolis, 296; School for the Blind, Indianapolis, 128; State Prison, Michigan City, 1185; State Reformatory, Jeffersonville, 956; Woman's Prison, Indianapolis, 141; Indiana Girls' School, Clermont, 285; Indiana Boys' School, Plainfield, 555. (The total number of inmates of these institutions was 11,608.) On September 30, 1913, these institutions had 12,929 inmates enrolled. For the fiscal year 1911-12, the total cost of the State for these institutions was $2,318,347. Under a law enacted in 1909, these institutions were all operated under a uniform plan of administration. The governor appoints a bi-partisan board of four trustees of each institution; these boards appoint their respective superintendents; superintendents appoint and discharge their subordinates, who, under the law, must be selected on account of their fitness, without regard to their political or religious affiliations. All these charitable and correctional agencies are under the supervision of the State board of charities, created by the legislature in 1899. Its purpose is the supervision of the whole system of the public charities of the State, and its duty is to see that every inmate of every public institution receives proper care, that the public funds are properly expended, that the institutions are properly conducted, and that their management is protected from unjust criticism.

Politics and Government. The legislature met in 1913 and passed a number of important measures. These included a public utilities commission bill, under the title of public service commission; a bill for an inheritance tax law; a bill for industrial and agricultural education under which the State advances in each county an amount equal to the local appropriation for these two interests and appoints a supervising instructor; a bill for a new housing law, the result of a long crusade; and a bill making unusually large appropriations for State, educational, penal, and reform institutions. There was no election for State officers during the year. The term of Governor Ralston expires in January, 1917. The next State election is on November 3, 1914. Governor Ralston was inaugurated on January 13, 1913. On March 22 he vetoed a "blue-sky" bill which had been passed by both houses of the legislature. The constitutional amendment providing for the direct election of United States senators was ratified by the legislature in January. The State suffered severely in the great floods in March, April, and May. (See Floods.) On August 27, Governor Ralston suppressed racing at the race tracks at Porter. In the elections of November 4, which were almost entirely for municipal officers, the Democrats practically swept the State. Of the total number of mayors elected, 41 were Democrats, 21 Republicans, 4 Progressives, and 10 Independents. The Democrats won generally on local issues and by reason of the hopeless division of the opposition. On November 28, Samuel L. Shank, mayor of Indianapolis, resigned his office, following dissatisfaction with his course in the street car strike and the strike of teamsters in that city. (See Strikes.)

Mayor Shank had won a more than local fame from his method of procedure in regard to the public markets. He inaugurated a system of these markets, and sold the produce himself on many occasions, with the avowed purpose of reducing the high cost of living. He went from the mayor's office to the vaudeville circuit.

LEGISLATION. The legislature met in 1913 and passed several important measures. These include the following: An act providing for the incorporation and State supervision of rural savings and loan associations; a measure providing for a public utilities commission; a measure providing for vocational education in the public schools; a graduated inheritance tax law; a loan-shark law; measures providing for a penal farm; a tenement house bill; an act providing for hospitals for tuberculosis; a uniform negotiable instruments act; a measure creating a commission to investigate the employment of women; an act reducing the time for appeal to Supreme and Appellate Courts from one year to six months. See also LIQUOR REGULATION.

STATE GOVERNMENT. Governor, Samuel M. Ralston; Lieutenant-Governor, William P. O'Neill; Secretary of State, L. G. Ellingham; Treasurer, William H. Vollmer; Auditor, William H. O'Brien; Attorney-General, Thomas Honan; Superintendent of Education, Charles A. Greathouse—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Douglas Morris, Dem.; Justices, Charles E. Cox, Dem.; Quincy A. Myers, Rep.; J. W. Spencer, Dem.; R. K. Erwin, Dem.; Clerk of the Court, J. Fred France, Dem.

STATE LEGISLATURE, 1913. Republicans: Senate, 9; House, 4; joint ballot, 13. Democrats: Senate, 40; House, 95; joint ballot, 135. Progressives: Senate, 1; House, 1; joint ballot, 2. Democratic majority: Senate, 30; House, 90; joint ballot, 120.

The representatives in Congress will be found in the section *Congress*, article UNITED STATES.

INDIANA UNIVERSITY. An institution of higher learning at Bloomington, Ind., founded in 1820. The enrollment in all departments of the university in 1913-14 was 2530. The faculty numbered ninety-six. At the beginning of the college year 1913-14, a department of domestic science was organized, with three teachers. The endowment fund of the university amounts to about $700,000. The total income is about $600,000. Of this amount, $40,000 is from fees, $43,200 from the interest on permanent endowment, and the remainder from funds granted by the State. The library contains about 91,653 volumes. The president is William L. Bryan, Ph.D., LL.D.

INDIANS. The bureau of Indian affairs of the United States government probably combines in its administrative duties more varied and intricate problems than any other bureau of the government. It deals not only with material questions involving the expenditure of vast sums, but with human problems connected with the working out of the civilization of a race of people alien to our form of government and the customs of white men. Throughout the Indian service there are 6000 employes distributed over twenty-six States, handling property approximately valued at $1,000,000,000. In the early days of the existence of the bureau, the Indians were dealt with as several large bodies corresponding to the Indian reservations. At the present time, however, the Indian office is engaged in distributing this vast estate to the individual owners, having due regard to the material and moral welfare of the individuals concerned. Of the 324,000 Indians now within the confines of the United States, a large number are as yet unfitted to assume the duties of full citizenship.

One of the most important tasks undertaken by the bureau is the determination of the heirs of deceased Indian allottees. It is estimated that there were in 1913 more than 40,000 heirship cases representing estates, valued at approximately $60,000,000. Another large work is the completion of the allotments of land to individual Indians. It is estimated that there are probably more than 120,000 unallotted Indians on the reservations throughout the United States, and there have been allotted about 180,000, covering an area of about 34,000,000 acres. In addition to these branches of the work of the bureau, others include the education of the Indian youth, the preservation of the health of the population, the development of agricultural stock-raising, and other industrial pursuits, the procuring of employment for the graduates of Indian schools, and the furnishing of educational facilities.

Agriculture and stock-raising as employment for the Indians are receiving special attention. The reservations are largely divided into farm or stock districts under the immediate charge of farmers or stockmen, and in connection with the agricultural work, experimental farms are being operated on some of these reservations, including Pima, San Juan, Shoshone, Pala, Colville, Soboba, San Xavier, Shivwits, and Leupp, and all the reservation Indian school farms are being used to demonstrate to the older Indians the possibilities of the soil in the several sections of the country. These farms also produce an income which is used in support of the school plant.

MINING. Mining on Indian lands, particularly for oil, received increased impetus during 1913, as a result of the discovery of additional oil pools in the Osage nation and on Indian lands west and south of this. During the fiscal year, more than 49,176,000 barrels of oil were sold from the territory of the five civilized tribes in Oklahoma. These produced a revenue of $1,496,179.

HEALTH CONDITIONS. The health conditions on Indian reservations are such as to warrant increased activity to bring about remedies for existing evils and to carry forward with greater rapidity the improvements now being inaugurated. It is reported that there are approximately 25,000 Indians suffering from tuberculosis, while available hospital facilities will accommodate but a few hundred. During the fiscal year 1913, 1905 Indians were reported as having died from this disease, and this probably represents not more than 75 per cent. of the total number who were its victims. During the year the Indian office was engaged in making a careful study of the housing conditions of the Indians, and improvements along this line will greatly facilitate the checking of tuberculosis. Another disease to which the Indians seem particularly susceptible is trachoma, which is infectious, and inasmuch as the Indians are living to a considerable extent among the white population, the checking of this disease becomes a serious problem in which the white citizens are much concerned.

FIVE CIVILIZED TRIBES. The citizenship rolls for these tribes were closed by law on March 4, 1907, and the work of allotment is practically completed with the exception of the delivery of certain allotment deeds and other minor details. These tribes include the Cherokee, Choctaw, Chickasaw, Seminole, and Creek nations. Allotments to the 3119 citizens of the Seminole nation have been completed. The remaining unallotted land, 280 acres, was sold during the year. Allotments have been made to 18,716 citizens of the Creek nation, and nearly all the remaining unallotted land has been sold. Land was allotted to 41,696 citizens of the Cherokee nation. All the unallotted land in this nation has been disposed of with the exception of 925 acres. In the Choctaw and Chickasaw nation the allotments have been completed to all the 37,685 citizens. In all the five civilized tribes there was disposed of during the fiscal year a total of 900,175 acres of unallotted land, the purchase price being $4,494,683, making the total sale, since the first sales in 1910, 1,849,722 acres, at a purchase price of $10,745,495. The expenses of the tribal government consists of a principal chief, or governor, with such clerical force as is necessary. Practically no governmental functions are being exercised, the principal duties being to look after the interests of the tribes generally, until such time as tribal affairs are finally closed and the tribal government can be dispensed with entirely.

EDUCATION. Of the $300,000 carried by the Indian appropriation act on August 24, 1912, $292,176 was paid to 2284 school districts in which were enrolled 23,442 Indian pupils and 2284 freedmen pupils. This appropriation was made by Congress to assist the public schools of the State of Oklahoma within the territory occupied by the five civilized tribes. A similar appropriation was contained in the Indian appropriation act of June 30, 1913. The superintendent of education urgently recommends a more aggressive policy for the education of Indian children. See also ANTHROPOLOGY.

INDIA RUBBER. See RUBBER.

INDO-CHINA. See FRENCH INDO-CHINA.

INDUSTRIAL ACCIDENTS. See WORKMEN'S COMPENSATION, and LABOR LEGISLATION.

INDUSTRIAL BETTERMENT. See WELFARE WORK.

INDUSTRIAL CITIES, NEW. See CITY PLANNING.

INDUSTRIAL COURTS. See ARBITRATION AND CONCILIATION, INDUSTRIAL.

INDUSTRIAL DISEASES. See OCCUPATIONAL DISEASES.

INDUSTRIAL INSURANCE. See INSURANCE.

INDUSTRIAL RELATIONS COMMISSION. Following an act of Congress providing for a commission to inquire into all phases of American industrial life, President Taft, on December 17, 1912, had sent to Congress his nine nominees for the three representatives each of the public, employers, and labor to constitute that commission. His appointments were objected to by the social workers and others who had conducted the campaign to have the committee established; and they failed of confirmation. On June 26 President Wilson named the following for the commission on industrial relations: To represent the public: Frank P. Walsh, chairman, attorney for the board of public welfare, Kansas, Mo.; John R. Commons, economist of the University of Wisconsin, member of the Wisconsin industrial commission; and Mrs. J. Borden Harriman of New York City, member National Civic Federation; to represent employers: Frederick A. Selano, Chicago, receiver and former president of the Wabash Railroad; Harris Weinstock, San Francisco, merchant and publicist; and S. Thurston Bullard, Louisville, Ky., manufacturer; to represent organized labor: Austin B. Garretson, Cedar Rapids, Ia., president of the Order of Railroad Conductors; John B. Lennon, Philadelphia, treasurer of the American Federation of Labor; and James O'Connell, District of Columbia, head of the metal trades department of the American Federation of Labor.

The scope of activities of this commission as stated in the Hughes-Borah act creating it is to inquire into the following: The general condition of labor in leading industries, including agriculture; existing relations between employers and employes; the effect of industrial conditions on public welfare and the powers of the community to deal therewith; sanitation and safety in industry; the growth of employers' associations and trade unions and their effects; the extent, methods, and results of collective bargaining; foreign methods of maintaining industrial peace; the scope, methods, and resources of existing bureaus of labor and means of increasing their usefulness; the entry of Asiatics; and the underlying causes of dissatisfaction in the industrial situation. Congress appropriated $100,000 for expenses.

In October the commission outlined four fields of investigation, and chose Mr. W. Jett Lauck as director of investigations. Mr. Lauck had served the immigration commission and the tariff board as an investigator. One inquiry will cover public agencies dealing with the labor problem with a view to suggesting "ways and means to coördinate their work, eliminate duplication, insure coöperation, and in general, promote economy and efficiency of effort." Mr. F. H. Bird, of the University of Wisconsin, and formerly of the Wisconsin industrial commission, was placed in special charge of this inquiry. A second will deal with trade disputes, with special reference to organized labor. A third, of which Mr. Basil M. Manly, special agent of the bureau of labor statistics, was given charge, will deal with unorganized labor and labor questions outside the scope of the regular unions. The fourth will take up the constitutional and legal aspects of industrial relations, the courts, and the workers. For this, Mrs. Crystal Eastman Benedict, a New York lawyer, who investigated industrial accidents for the Pittsburgh survey, was given charge. The commission planned to hold hearings at which representatives of every phase of the industrial movement will have opportunity to state their cases.

INDUSTRIAL WORKERS OF THE WORLD. This is a radical labor organization which has risen to great prominence in the United States during the past few years. It was formed at Chicago in 1905, by a combination of the Western Federation of Miners, the United Metal Workers, the American Labor Union, and the Socialist Trade and Labor Alliance. A split in the organization in 1908 resulted in two branches with headquarters respectively at Chicago and Detroit. The former is the more revolutionary, having eliminated from its principles all reliance on political action. It has been conspicuous in strikes at Lawrence and Little Falls in 1912 and at Paterson in 1913. In the latter struggle, led by William D. Haywood, 25,000 strikers were defeated after five months resistance and a loss of over $5,000,000 in wages. The strike was very remarkable for absence of violence; it was marked by a most unreasoning opposition to the I. W. W. by the mill owners, the press, and public officials; and was unsuccessful largely because of this alienation of public support. Due consideration of the claims of the workers was not given because of a fierce determination to defeat the I. W. W. leaders. This opposition was in part due to the creed of direct action and the defense of sabotage by some of the leaders, thus placing the stamp of syndicalism (q.v.) on the movement. (See STRIKES AND LOCKOUTS.)

SEATTLE INCIDENT. As the result of misquotation of remarks by Secretary of the Navy Daniels, there occurred, in July, in Seattle, an attack on Socialist and I. W. W. headquarters by sailors of the Pacific coast reserve fleet. The secretary, in an address before the Rainier Club of Seattle, had paid a tribute to the United States flag and declared that the red flag meant danger. This was played up by the Seattle *Times* and incited the sailors. In the rioting $8000 worth of property was destroyed. The mayor ordered the *Times* to cease publication temporarily and closed fourteen saloons.

CONVENTION. The annual convention of the organization was held at Chicago late in September. Reports showed that the paid-up membership was 14,310. In addition there were estimated to be about 25,000 dues-paying members of local bodies and a non-dues paying enrollment of 50,000 to 60,000. Evidence showed that the membership of locals fluctuated greatly. Thus, immediately after the strike at Lawrence, Mass., in 1912 a membership of 14,000 was claimed; in 1913 the number was only 700, and some of these were threatening to withdraw to the American Federation of Labor. At Akron, O., at the time of the strike in the rubber industries early in 1913, about 6000 paid the initial membership dues; but not over one-third of these had paid dues up to September. During the year 99 locals went out of existence; and there were others, some of them strong ones, which were at cross purposes with the central organization.

Much of the time of the two-weeks convention was consumed in the contests of those who favored an increase and those who favored a decrease in the power of the central authority of the organization. The decentralization faction favored complete local autonomy. It therefore sought to abolish the general executive board, to reduce the support of the general organization and thus cripple it, to provide for general legislation by referendum, to place organizers under the direct control of members, and to make the general officers mere correspondence secretaries. While they were not successful in thus demoralizing the central authority, this internal conflict revealed a serious weakness of the movement.

Professor R. F. Hoxie (*Journal of Political Economy*, November, 1913) finds three great weaknesses in the organization. In the first place there is a lack of financial resources. Although the I. W. W. theorists are prone to boast of their superiority to trade unions, Socialists, and labor parties in this respect, their own practical experience shows repeated failures for lack of funds to hold workers together at critical moments. In the second place there is a lack of able and steady leadership. The organization has not shown capacity to develop far-sighted leaders who might place the organization on an effective permanent basis. Some of its strongest men have either left or been driven out of it. It therefore lacks constructive ability. In the third place, the conflict within the organization itself is a source of great weakness. This conflict is due to different philosophies of the labor movement. One party believes in industrial unionism carried on by a well-organized, soundly financed, and sanely directed organization of all laboring men. The other party believes in revolutionary syndicalism carried on by irresponsible, loosely-formed local bodies seeking merely to undermine the present industrial order by making it unprofitable. See also TRADES UNIONS.

INFANTILE SPINAL PARALYSIS. See POLIOMYELITIS.

INITIATIVE AND REFERENDUM. See ELECTORAL REFORM.

INJUNCTION. During many years the trade unions of the country have expressed open hostility to the existing laws governing the issuance of injunctions. The leaders of the American Federation of Labor especially have promoted legislation in Congress designed to place limitations upon the use of injunctions in trade disputes. The famous Buck's Stove and Range Company case, leading to contempt of court proceedings against the officers of the federation served to give point and bitterness to the controversy. (See LABOR, AMERICAN FEDERATION OF.) Every move made by the unions was opposed both in and out of Congress by the National Association of Manufacturers. President Taft maintained a consistent and determined opposition to any lessening of the discretion of the courts. Nevertheless, in the last session of Congress of his administration a bill was passed by the House of Representatives embodying the trade-union demands.

The disputed sections of this bill provided that no injunction should be granted in disputes between employers and employes regarding terms and conditions of employment unless necessary to prevent irreparable injury to property or to property right for which there is no adequate remedy at law; any such property or right must be described with particularity in the application for a writ of injunction. The bill provided that no writ should be issued restraining any person from terminating employment, or from recommending or persuading others to do so; or from peaceful picketing; "or from ceasing to patronize or to employ any party to such dispute; or from recommending, advising, or persuading others by peaceful means so to do; or from paying or giving to, or withholding from any person engaged in such dispute any strike benefits or other moneys or things of value; or from peacefully assembling at any place in a lawful manner or for lawful purposes; or from doing any act or thing which might lawfully be done in the absence of such dispute by any party thereto."

These provisions were most strenuously objected to on the ground that they constituted class legislation by giving trade unions special exemptions from restraints imposed on other organizations, and by permitting them to violate contracts, and to employ unusual methods in enforcing their demands. Opponents pointed out that the oft-repeated criticisms of legal technicalities and delays do not apply to injunctions which are prompt and direct. In theory the injunction is a defense of the weak against the strong: it is designed to prevent irreparable injury. It does this by enforcing a peaceable settlement of differences and preventing long drawn out suits for recovery of damages after injury has been done, in which suits the parties may be unequally able to carry their case to the court of last resort. Thus it was argued that injunctions should be issued in trade disputes to prevent injuries for which adequate recovery could not be made subsequently.

See also LABOR, AMERICAN FEDERATION OF, *Contempt Case.*

INSANITY. The number of insane patients under care, in countries that keep accurate statistics, increases annually. The increase in the incidence of lunacy may be only apparent, and due to the fact that nearly all cases formerly treated and concealed at home are now placed in public or private institutions.

The New York State hospital commission (formerly State commission in lunacy) reported on September 30, 1913, the number of committed insane and voluntary cases in State hospitals together with committed insane in licensed private retreats as 16,714 men and 18,318 women, making a total of 35,032 patients; of which number, 1403 were inmates of Dannemora and Matteawan, the criminal institutions, and 1030 were in private retreats. There were 861 on parole from civil hospitals. The net increase for the year was 975, against 573 for 1912, and 606 for two years ago. During the year, 1352 were returned to other States or deported to foreign countries, against 1753 the previous year, and 1100 two years ago. The total number admitted to civil hospitals during the year was 7677, of which number 6075 were first admissions, and 1602 were readmissions. From the 14 civil hospitals, 1597 were discharged as recovered, 1515 as improved; and 2890 died during the twelvemonth. The amount disbursed for maintenance was $6,458,924. Upon new buildings, extraordinary repairs or equipment, or emergencies was expended the sum of $995,680. The annual *per capita* for maintenance was $206.08, omitting calculation of the cost of lodging, against $203.45 last year. The ratio of the insane was 1 to 277 of the estimated population of New York State. The chief contributing cause, next to heredity, was alcohol, and syphilis was the determining cause in a large percentage of cases. These two preventable causes were the precipitating factors in over 40 per cent. of the cases in New York State. Over 40 per cent. were of foreign birth.

The Massachusetts State board of insanity reported on September 30, 1912 (the latest published report), a total of 13,365 patients, including 6544 males and 6821 females; of which number 13 men and 303 women were under family care, in the "boarding out" system. Of the total mentioned, also, 127 men and 218 women were in private institutions. The increase for the year was 451, against 340 for the previous year, and 522 two years previously. The average annual increase for 5 years was 519. The increase of insane under private care was 16, compared with 9 last year. Court commitments totaled 3093, against 2970 the previous year. Voluntary admissions were 254 in number, compared with 206 the previous year. Of the total of 3350 admissions, 2660 were first cases, and of these 44.40 per cent. were of foreign birth, and 67.89 per cent. were born of foreign parentage. Alcohol was a causative factor in 17.4 per cent., syphilis in 6.28 per cent. of first admissions. In the first cases manic-depressive insanity occurred in 13.01 per cent., and dementia precox in 21.77 per cent. The recovery rate for the State was 15.08 per cent. of the commitments, compared with 13.47 the previous year. The ratio of insane persons to the estimated population of the State was 1 to 262. During the year, Dr. Elmer E. Southard, professor of neuropathology in Harvard Medical School, and formerly pathologist to the board, was made director of the Psychopathic Hospital the new departmental unit of the Boston State Hospital for the Insane, which serves as a reception hospital for the insane of Boston, and as an observation and treatment hospital for special classes of the metropolitan district.

The report of the commissioners in lunacy for England and Wales for January 1, 1913, stated that the number of notified insane under care was 138,377, which exceeded that recorded a year ago by 2716. Of this number, 4852 men and 6501 women were called "private patients," including those in county and borough asylums, in registered establishments (including idiots), in licensed houses (including idiots), and in naval military hospitals, and "private single patients." Of the total stated, 125,841 (58,508 men and 67,333 women) were classed as "paupers," and 1183 (903 men and 280 women) were classed as criminals. In May, 1912, 853 of these criminal insane were in Broadmoor, and 55 were in Parkhurst, in July, 1912. The number of insane in England and Wales was as 1 to 267 of the estimated population, against 1 to 269 last year, and 1 to 275 two years ago. The number discharged, recovered, in 1912, reached 7345; discharged, "relieved," or "not recovered," 2182; while 10,353 died. These figures excluded 73 patients who had to be recertified as transfers. The recovery rate, reckoned upon total admissions, was 32.74 per cent.; the rate for females being 36.10, and for males 29.08 per cent. In borough asylums the recovery rate was 32.3 per cent.; in hospitals, 42.4 per cent.; in licensed houses, 37.3; and in "single care," 33.0 per cent.

The inspectors of lunatics for Ireland reported on January 1, 1913, 12,962 men and 11,877 women, or in all 24,839 insane under care, representing a net increase of 184 during the year. Of this total, 880 were in "licensed houses and mental hospitals," 162 in Dundrum (the criminal institution), and 146 were chancery cases and other patients in unlicensed private houses. Of the total, 2735 (1449 men and 1286 women) comprised the first admissions.

Alcohol was assigned as principal or contributory cause in 374 cases, or 13.4 per cent. The percetnage of recoveries based on admissions was 40.3, or 0.4 less than a year ago. The deaths numbered 1424, including 758 males and 666 females. The ratio of the insane of Ireland to the estimated population was 1 to 176.4.

Probably the most notable advance in the field of insanity of the year, was the finding of the *spirochæta* in the brains of general paretics. Although Ehrlich and Jessen discovered a relationship betwen paresis and syphilis in 1857, it was reserved for very recent investigators to demonstrate that the *spirochæta* was directly and actively concerned in paresis. Noguchi and Moore, of the Rockefeller Institute, New York City, found *spirochæta pallida* in cases of general paresis, distributed through the gray substance of the convolutions, and not related to the meninges or the lesions. The organism was present in 17 to 24 per cent. of the typical cases. This important etiological finding was confirmed by Marinesco and Minea, and also by A. Marie. Technical reasons sufficed to explain the smaller percentage of Noguchi and Moore's findings; for Levaditi, Marie and Bankowski demonstrated the spirochete in the freshly obtained brains of 8 out of 9 cases of typical paresis. Nichols and Hoff of Washington, D. C., also corroborated the work of Noguchi and Moore, as also Flexner. Berger inoculated 20 rabbits with material from the brains of 20 patients with pronounced paresis, and in 3 rabbits positive results were obtained. We may now say that paresis, or general paralysis of the insane, is the result of actual syphilitic infection of the brain.

Many foci of pellagra (see also under PELLAGRA) had been discovered in the hospitals for the insane of the United States, in all about 50,000 cases of the disease having occurred within the last 6 years, with a mortality of about 39 per cent. According to the zeistic hypothesis, which prevailed especially in Italy, pellagra was a dietetic disease, depending upon an undue preponderance of maize in the diet, or upon the use of spoiled maize. No experimental evidence supported this view. According to the antizeistic hypothesis, the malady was an infectious disease, the infecting agent being unknown. Sambon, of Rome, felt that certain species of *Simulium* (sand fly, black fly) were carriers of pellagra virus, but again experiment failed to confirm the view. The Illinois pellagra commission considered that the disease might be due to an infection of the intestinal canal, and that a diet insufficient in animal protein might predispose to its development. The diet of the Italian peasantry which had sufferede so much from the disease was rather low in animal protein. Marked gastro-intertinal inflammation and intestinal ulcerations occur in pellagra, and lend color to the Illinois conception, which is worthy of study, with experiments upon the diet of the pellagrous insane.

April, 1913, saw the opening of the psychiatric clinic and hospital attached to Johns Hopkins Hospital, Baltimore, the gift of Henry Phipps, Esq., of Pittsburgh, and under the directorship of Dr. Adolf Meyer, for many years at the head of the Psychiatric Institute of the New York State Hospitals for the Insane, at Wards Island. Dr. Meyer planned the building after special study of Swiss, German, French, Austrian, and Italian hospitals for the insane. The architect was Grovesnor Atterbury, of New York.

INSECTS AND PROPAGATION OF DISEASE. See ENTOMOLOGY; INSANITY, *Pellagra;* and MEDICAL PROGRESS, *passim.*

INSURANCE. LIFE INSURANCE. *Statistics.* According to the report of the superintendent of insurance of New York State there were doing business in that State on December 31, 1912, 34 companies, of which 11 were New York State companies, and 23 were companies of other States. These companies had a total of 7,001,913 policies in force, insuring $13,527,000,000. This was an increase during the year of 380,000 in the number of policies, and $725,000,000 in the amount of insurance. The policies were classified as follows: whole life, 4,284,966, insuring $8,683,000,000; endowment, 2,073,181, insuring $3,064,000,000; term and irregular policies, 643,766, insuring $1,683,000,000. The gross assets of all the companies were $4,173,953,000, an increase of $231,809,000 as compared with the previous year. Of the total assets, New York State companies had $2,371,000,000; and companies of other States $1,803,000,000. The total liabilities, exclusive of surplus and special funds amounting to $231,775,000, were $3,942,000,000, of which the New York State companies had about 56 per cent. The total income of all companies was $795,282,000, an increase of $40,748,000 over the preceding year. The net excess of income over disbursements for 1912 was $227,764,000, almost exactly the same as in 1911. The total income from premiums alone for 1912 was $597,202,000. The total disbursements for the year were $567,517,000, an increase of merely $41,000,000, as compared with 1911. There were paid for claims $246,459,000; for lapsed and surrendered policies, $84,600,000; in dividends to policy holders $89,171,000; in dividends to stock holders $1,130,000; for commissions $53,511,000; for salaries and medical examiners' fees $49,658,000. In other words, there was paid to policy holders $423,019,000; while the cost of management was $144,497,000. The total number of policies issued during the year was 898,027, insuring $1,716,000,000; and the policies terminated numbered 511,770, insuring $981,412,000. The proportion of policies terminated by principal causes was about as follows: death, 12 per cent.; maturity, 5 per cent.; expiry, 12 per cent.; surrender, 29 per cent.; lapse, 42 per cent.

Policy Loans. At their annual meeting at New York, in December, the national convention of insurance commissioners adopted a resolution calling for the passage of laws restricting policy loans. They proposed that hereafter every insurance policy contain a clause giving the company the right to defer for at least 60 days the granting of a policy loan or cash surrender value. Statistics were presented to show that the ratio of policy loans had risen in 25 years from 3 per cent. to 25 per cent. Total loans outstanding were estimated at $1,500,000,000. It was stated that 120 companies which obligate themselves to make loans or pay cash surrender value on demand have actual cash on hand of only 1 per cent. of such obligations. They would, therefore, have great difficulty in meeting demands in time of panic.

Postal Life Insurance Company. This company was formed a few years ago and became of substantial size through the reinsurance of the business of the economic life, the mutual reserve fund life, and the provident savings life. It is unique in that it has no agents, but gets in touch with prospective insurants through newspaper and magazine advertisements and does its soliciting by mail, direct from the main office. It was subjected to a seven months' examination by the New York insurance department, covering the period to June 30, 1912. The voluminous report stated that it was as yet impossible to state accurately the expense of getting business by the postal's method; but during 1911 the advertising expense was $25,661, and the new premium income, $26,578. During the first 6 months of 1912 the advertising and medical expenses were 54 per cent. of the new premium income. The superintendent of insurance stated that the company has no litigation arising out of its own business; that there is merit in the medical department of the company; that the company claimed an addition of $40,000 to surplus between June 30 and December 1, 1912; and that the company was succeeding well with the solution of numerous problems arising from taking over the business of the Provident Savings Life Assurance Society.

State Supervision vs. State Insurance. Since the great insurance scandals of nearly a decade ago there has been much favor expressed in this country for insurance to be issued by State government. Massachusetts, in 1910, instituted a plan for issuing industrial life insurance through savings banks. In 1912, Wisconsin undertook the issue of standard life insurance in competition with private companies. Following the growth of a more intelligent public opinion as to the nature and functions of life insurance the companies have accepted a vastly greater amount of regulation and supervision as the most feasible means of preventing an effective movement for State insurance. Superintendent of Insurance William T. Emmet, of New York, declared in January, before the Association of Life Insurance Presidents, that the only way to save the business for private companies is through State supervision carried even to premium rates and all other details. Pointing to the elaborate public insurance systems of England and Germany and the recent inauguration of schemes by some of the States, together with the Socialistic tendencies of the day, he stated his belief that the movement toward a State system is bound to continue. He said this movement is based on "the fundamental proposition that insurance is a universal need, an absolute public necessity." He thought that effective supervision would check only temporarily the demand for a State system.

Others pointed out that insurance is a coöperative effort; is motived in part by a strong sentiment; and that, therefore, its exploitation for profit is obnoxious.

The opponents of State insurance declared that it would prove ineffective because it made insufficient provision for soliciting; and because it would become the spoils of party politics. The first of these arguments was answered by the statement that the State could provide an ample system of educating the public; and the second by pointing to the post office and the educational system.

INDUSTRIAL INSURANCE. The report of the New York State superintendent of insurance showed that the four great industrial insurance companies, Metropolitan, Prudential, John Hancock, and Colonial, had in force, on December 31, 1912, 24,558,837 policies, insuring $3,432,767,000. Of the total number of policies, the Metropolitan had 48 per cent.; the Prudential, 42 per cent.; and the John Hancock nearly all the remainder.

FIRE INSURANCE. The report of the superintendent of insurance of New York showed that on December 31, 1912, there were doing business in that State 131 American joint-stock, 28 mutual, and 52 foreign joint-stock fire and fire marine insurance companies. These 211 companies showed aggregate resources of $641,917,000, an increase of $47,818,000 over 1911. Their total liabilities, excluding capital, were $342,911,000. Their capital amounted to $81,175,000, of which $25,954,000 was charged to the American branches of foreign companies. The total income from all sources was $358,712,000; 181 companies showed an excess of income over disbursements $37,280,000, whereas 30 companies showed a deficit of $2,381,000. The disbursements aggregated $323,814,000, of which $157,923,000 was for fire losses, $68,537,000 for commissions, $25,931,000 for administrative expenses, $9,045,000 for taxes, and $19,708,000 for dividends. During the year 1912 the companies assumed fire risks of $43,135,188,000, charging thereon premiums aggregating $454,943,000. The total fire risks in force at the close of the year were $51,202,402,000.

In mid-summer, Superintendent Emmet of the New York department issued a report showing that the rates fixed by the New York Fire Insurance Exchange, controlling rates in Greater New York, were excessive. He found that in 13 years the companies had made an underwriting profit of 14 per cent. and an investment return of 2 per cent., or gross average profit of 16 per cent., exclusive of interest on capital and surplus. On the other hand, in May, at the annual meeting of the National Board of Fire Underwriters, statistics were presented showing that in 10 years, 1903-1912, 183 principal companies doing most of the business in this country had recieved in premiums a total of $2,550,000,000, and had paid out in fire losses, expenses and increased liabilities, $2,553,000,000. These figures were designed to show that on the whole the companies were living on their income from investments.

Arson. Following several conspicuous cases of incendiarism, Fire Commissioner Johnson of New York City declared that twenty-five per cent. of the fires of that city were of incendiary origin; that there existed an organized band of incendiaries constituting an "arson trust"; and that the insurance companies were to blame in part for not inspecting more carefully the risks offered them. He said that through collusion dishonest brokers, solicitors, and adjusters of the city succeeded in burning and securing insurance for $4,000,000 worth of property annually. This position was in part supported by others who called attention to the court records and the activities of State fire marshals. Moreover, the findings of legislative committees in New York, Wisconsin, and Illinois had shown that incendiarism was encouraged by the greed of companies for a large volume of business and the agency system both leading to over-insurance. Commissioner Johnson proposed that thorough inspection and appraisal precede the issue of an insurance policy; but this was said by insurance experts to be impracticable on account of the cost. It was therefore proposed that agents should be required to certify that they know the property and its owner, that the owner is worthy, and that the insurance is not excessive. Then provide that, if it should be shown later that the property was over-insured, the agent should forfeit his commission thereon. This would work no harm to honest owners or honest agents, and would safeguard the lives and property of innocent persons. But, on the other hand, it was asserted that the extent of arson was grossly exaggerated; that nearly all agents were honest; and that companies do not consciously tempt the criminally inclined by permitting over-insurance.

American Union Fire Insurance Company. This Philadelphia company failed early in the year, its failure being one of the most serious in the fire insurance world in many years. The cause of its collapse was said to be incompetency on the part of principal officers and neglect by the directors. The State insurance examiners found that the December 31, 1912, report was grossly false. Assets were about $603,000, or only one-half the sum reported, plus $456,000 uncollectable premiums. Unearned premium liabilities were about $680,000, and unpaid losses about $173,000. Before failure, plans had been almost carried out to have the company's business taken over by a strong New York company; but this was prevented by sudden receivership proceedings. The insurance department of Pennsylvania acted as liquidator. Commentators pointed out that this failure showed the insufficiency of the usual State supervision of insurance companies to protect the policy-holder; more confidence must be placed in the integrity of the company management than in official inspection.

Missouri Experience. Early in 1913 the Missouri legislature enacted an anti-trust law known as the Orr law. This law declared that it should be *prima facie* evidence of guilt for any representative of one insurance company to use the same rate as that used by any representative of any other insurance company. On April 30 and shortly thereafter nearly every fire insurance company declared its intention of transacting no further business in that State while the law was in force. The superintendent of insurance then announced that he would revoke the license of any company taking such action; and the attorney-general instituted injunction and *quo warranto* proceedings against the companies. These proceedings were upheld by the State Supreme Court June 28. This trouble really began under the Oliver law of 1911, whereby under the discretionary power of the superintendent of insurance considerable reductions in rates and hence in premium income of the companies was enforced. Thus the loss ratio in Missouri increased from 59.3 per cent. in 1909 to 72.5 per cent. in 1912. These ratios contrast with that of 36.66 per cent. for 65 large companies outside the State during the ten years 1903-1912. Following the withdrawal of the companies the principal bureaus of fire insurance agents suspended business. Soon thereafter the attorney-general in a written opinion declared his belief that the objectionable features of the law were unconstitutional, and agreed to dismiss the court proceedings.

This experience of the State of Missouri in endeavoring to enforce competition in insurance rates attracted wide attention. It was the prevailing opinion, particularly among those who favor the ultimate adoption of State insurance as the most reasonable solution of the insurance problem from the social standpoint, that not only is competition in fire insurance impossible, but it is positively undesirable. They contend that, if it could be actually enforced, there would eventually result increased fraud and less actual protection for the public.

MARINE INSURANCE. There were at the close of 1912 doing business in New York State thirty-two domestic and twenty-eight foreign companies writing marine insurance. All of the American companies did in addition a fire insurance business. During 1912 the aggregate marine and inland risks underwritten amounted to $15,781,957,000. Of this the foreign companies wrote sixty per cent. The total marine and inland insurance in force in these companies at the close of 1912 aggregated $1,171,740,000, of which two-thirds was credited to the domestic companies. See also SAFETY AT SEA.

CASUALTY, CREDIT, AND TITLE. Some slight indication of the extent of casualty, fidelity, surety, and credit insurance is shown by the reports of companies doing business in these lines in the State of New York. In 1912 there were 63 companies with total assets of $162,406,000, total liabilities of $88,736,000, and combined capital and surplus of $73,669,000. They had a total income in that year of $122,125,000; they paid claims of $43,197,000, dividends of $5,864,000; and had expenses of $60,029,000. In the same State at the same time there were 11 title and mortgage insurance companies, with aggregate assets of $52,410,000, and income during the year of $6,865,000.

FRATERNAL INSURANCE. According to the report of the superintendent of insurance in New York State, seventy-five fraternal orders making reports in 1912 claimed assets of $121,524,000. During the year they received from members $80,461,000 and from other sources $6,184,000; they paid out to members $64,091,000, and in expenses $10,386,000. They had in force at the close of 1912, 5,151,526 certificates, with a total insurance in force, amounting to $6,163,020,000. There were in addition over 300 minor organizations mostly fraternal, but including assessment life and accident associations, which made no report. These figures, while they include perhaps 60 per cent. of the fraternal insurance of the better orders of the entire country and thus show clearly the enormous extent of the fraternal movement, do not throw any light on the hundreds of minor and often misleading societies which spring into existence here and there for short periods.

The great problem confronting fraternal insurance in recent years has been that of the soundness of their actuarial principles. Fraternal societies are designed to afford not only financial protection, but also social opportunities. They are due mainly to a demand for insurance at lower cost than that supplied by old-line companies. This they have often been able to afford because of less expensive machinery; moreover the assessment principle makes it possible for the contributions of many to pay the benefits accruing to the few. But as the orders have expanded, and especially as their membership has attained a higher average age with consquent increase in the number of deaths, the necessity of sounder actuarial principles and of more experienced financial management has been enforced upon them. The Mobile bill, drawn up at a conference of fraternal bodies and insurance commissioners in 1910 and providing a sounder basis for fraternal insurance, has been enacted in sixteen States. In December, 1912, a similar conference proposed an amendment permitting societies to continue their existing membership on existing rates, but empowering the State to require a sufficient number of assessments annually to pay all claims as they accrue. The amendment also requires, full publicity at stated intervals to each member. The adoption of this amendment would prevent any fraternal order from gradually approaching bankruptcy.

TAXATION. Much attention has been given in recent years to the subject of taxation of insurance companies, especially following the corporation tax law of 1909. The discussion was renewed with vigor preceding and following the passage of the income tax provisions of the new tariff law. In both acts the dividends of insurance companies were taxed. Statistics were presented to show that the taxes paid by insurance companies reporting to the New York department amount to over $12,000,000 per year; and that in 33 years, 1877-1909, these companies paid in a total of $148,940,000 in taxes. This was near 21 per cent. of the entire dividends returned to the policy holders during that period. The taxation of dividends by the income tax law was therefore vigorously resisted, mainly on the ground that its only effect would be to make insurance more expensive. This would tend to reduce the amount of insurance taken and the number of persons insured, whereas there would be great social advantage in increasing the extent of insurance.

In a case testing the constitutionality of the corporation tax law the Circuit Court of Appeals held that where a dividend of a mutual insurance company is applied in reducing the premiums for the ensuing year, for increasing the amount of insurance or for diminishing the time it is not a true dividend taxable under the corporation tax law. The Supreme Court of the United States in December practically affirmed this opinion by denying a writ of certiorari to review this decision. It was estimated that under this decision the government must refund about $1,500,000 collected during the four preceding years from insurance companies.

In December the Supreme Court also sustained the right of the State of Montana to tax net receipts of life insurance companies in each county. The contention of the New York Life Insurance Company that such taxation constituted an interference with interstate commerce was overruled.

Where the question of the taxation of insurance companies is under discussion, one general and concluding consideration is in place, namely, that it is not by any means universally recognized here that participating insurance is really a coöperative undertaking with the purpose of obtaining insurance at cost. The recognition of this fact in England is shown by the fact that a deduction from taxable income is made in the case of sums paid for insurance.

See also BANKS AND BANKING; FINANCIAL REVIEW; and FIRE PROTECTION.

INSURANCE, WORKMEN'S. See WORKMEN'S COMPENSATION.

INSURANCE COMPANIES, TAXATION OF. For a consideration of the taxation of insurance companies under the Missouri anti-trust law of 1909, see INSURANCE, the section *Taxation.*

INSURANCE OF EMPLOYES. See WORKMEN'S COMPENSATION, and see also article LABOR LEGISLATION.

INSURANCE TAXATION IN MONTANA. See INSURANCE, *Taxation.*

INTERBOROUGH RAPID TRANSIT COMPANY. See RAPID TRANSIT.

INTERNAL COMBUSTION ENGINES. Both on land and sea the internal combustion engine first successfully developed by Diesel, continued to receive increased attention and application. The capacity of such engines for use with ships had reached a point where units aggregating 6000 horse power were turned out, as will be found described under shipbuilding (q.v.). In central station work a maximum of about 2000 kilowatts capacity at the outside has been set for these prime movers as certain difficulties connected with the large sizes of cylinder still remain to be overcome. Progress was expected, however, especially with the turbine form of constructing large units, as the simplicity of construction, economy of operation, and general availability characteristic of the smaller size undoubtedly could be secured in larger machines, though difficulties of construction do arise and lower efficiency is manifested. The problem of cooling become quite serious in connection with the very large units. The accepted specific consumption for the heavy oil engine was stated as 0.4 pounds of fuel per horse power hour under full load and favorable conditions of operation, which fact alone was sufficient to insure its installation under favorable circumstances and to lead to further attempts to overcome unfavorable conditions.

American manufacturers had been slow about installing gas engines, especially in comparison with European plants, but in the summer of 1913 the Ford Motor Company, at Detroit, installed a 5000-horse power gas engine. In spite of the fact that the United States is the leading source of petroleum, large size engines for the use of crude oil have been neglected and practically every other nation in the world has led the United States in their use. During the year, however, arrangements were made by a large steam engine manufacturing company in the United States to undertake the manufacture of a Swedish type of Diesel engine for both stationary and marine service. The matter was one of increasing importance in the United States on account of the rise in the cost of gasolene and the necessity of employing crude oil fuel for power purposes.

An interesting machine which was being developed experimentally in England by Low, was an internal combustion engine into which coal is fed directly. As first designed this machine derived its gas from the effect of heat on tubes containing coal. The coal was pushed forward by spiral conveyors which extended through the tubes, but owing to the high temperature these conveyors lost their rigidity and had to be abandoned. In the later model Dr. Low employs larger feed pipes arranged vertically so that the coal is fed forward by its own weight.

Professor Hopkinson, the well-known worker in the field of internal combustion engines, devised a method of cooling gas engine cylinders by the direct injection of water on piston and exhaust valves, which was attracting considerable attention. During the year the Humphrey gas pumps for the Metropolitan Water Board of London were completed and put in operation. See PUMPS.

During the year a patent was granted to Hiram Percy Maxim, of Hartford, Conn., for a silencer for gas engines based on much the same principle as the silencer on fire arms of the same inventor. It consists of a series of wide cylindro-spiral shells reversely directed, eccentrically arranged, and nested in such a way as to provide a series of alternately reversible spiral-whirl pumps which gradually expand regularly from the admission end and gradually contract towards a constricted discharge throat, together with coöperating supporting means. No extensive use of this devise had been attempted during the year, but it occasioned considerable interest.

DIESEL LOCOMOTIVE. The success of the Diesel high compression oil engine for stationary units suggested its application to the railway locomotive and during 1913 an express locomotive destined for service on the Berlin-Magdeburg line was constructed by Sulzer Brothers of Winterline, Switzerland. In this locomotive there is a driving engine direct-coupled to the driving axles and an independent auxiliary engine which serves to generate compressed air for operating the main engine in starting, on heavy grade, etc., with high charges, while there is a system of storage tanks that can be drawn upon when the auxiliary engine is not in operation, or even while it is working. The new locomotive is 54.46 feet in length between the buffers and weighs 95 tons in full working order. The driving wheels which are coupled are 5 feet 29 inches in diameter and the energy is transmitted from a loose shaft to the coupled wheels by coupling rods. The driving engine is in the centre of the machine and has a reversible four-cylinder, single-acting Sulzer motor, working on the two-cycle principle. There are four cylinders set by pairs at an angle of 95° to one another, with each pair at an angle of 45° to the planes of the track. The bore of the cylinders is 14.96 inches and the length of stroke is 21.65 inches. There are two cranks set at 180° designed to run at 304 revolutions per minute at a traveling speed of 100 kilometers per hour. The engine can be controlled at either end and has a complete mechanism for starting, reversing, operating the brakes, whistles, and other gear.

On its preliminary trial a fast freight train with its steam locomotive was hauled at a speed of 44 miles per hour and the traveling speed varied between 12.43 and 49.7 miles per hour. The engine was considered most successful and further developments along this line were looked for.

GAS TURBINE. A gas turbine rated at 1000 horse power was reported during the year, designed and constructed by Holzwarth of Mannheim, Germany. This machine was stated to have operated successfully with a high thermal efficiency and marked a step in advance for machines in this field. The gas turbine, of course, has the advantage of direct rotary motion, as compared with the reciprocating motion of the ordinary internal combustion engine. Such machines, however, in 1913, were in an early stage and much remained to be done, both experimental and practical, in connection with their development.

INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION. See LABOR LEGISLATION, INTERNATIONAL ASSOCIATION FOR.

INTERNATIONAL CONFERENCE OF THE REPRESENTATIVES OF NATIONAL TRADE CENTRES. See TRADE UNIONS.

INTERNATIONAL EXHIBITION OF MODERN ART. See PAINTING AND SCULPTURE.

INTERNATIONAL LANGUAGE. See LANGUAGE, INTERNATIONAL.

INTERNATIONAL METRIC CARAT. See WEIGHTS AND MEASURES.

INTERNATIONAL TRADE. See articles on countries, industries, and crops.

INTERPARLIAMENTARY UNION, SEVENTH CONFERENCE OF. See ARBITRATION, INTERNATIONAL.

INTER-STATE COMMERCE COMMISSION. See RAILWAY ACCIDENTS.

IOWA. POPULATION. The population of the State in 1910 was 2,224,771. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 2,222,472.

AGRICULTURE. The area, production, and value of the principal crops in 1911-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	9,950,000	338,300,000	$202,980,000
	1911	9,850,000	305,350,000	161,836,000
Wheat	1913	795,000	16,395,000	12,460,000
	1911	647,000	10,622,000	9,348,000
Oats	1913	4,880,000	168,360,000	57,242,000
	1911	4,950,000	126,225,000	51,752,000
Rye	1913	60,000	1,092,000	655,000
	1911	30,000	540,000	416,000
Potatoes.....	1913	150,000	7,200,000	5,904,000
	1911	174,000	12,876,000	9,399,000
Hay	1913	3,000,000	a4,440,000	42,624,000
	1912	3,537,000	4,952,000	47,044,000

a Tons.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $22,900,350, compared with $21,112,896 in 1911.

The total production of coal in the State in 1912 was 7,289,529 short tons, valued at $13,152,088. Iowa was one of the few States in which there was a decrease in the coal production in 1912. The production in 1911 was 7,331,648 tons, valued at $12,663,507. The decrease was due to the fact that most of the mines were shut down during April and the greater part of May, pending the adjustment of the wage scale. The coal mines suffered also from car shortage. The number of men employed in the coal mines of the State in 1912 was 16,370. These worked an average of 188 days, against 16,599 for an average of 203 days of Mines, there were 19 men killed in the coal in 1911. According to the United States Bureau mines of the State, compared with 40 in 1911. All the fatalities in 1912 occurred underground, and 11 of them were due to falls of roof and coal.

The total value of the clay products in 1912 was $4.522,326, an increase of $89,452 over 1911. The State is the first in the manufacture of draintile.

Education. The total school population in 1913 was 671,016, and the enrollment was 507,846. The average daily attendance was 369,874. The total number of teachers employed was 27,432. The total expenditures for the common schools for the year ending June 30, 1913 was $16,442,528. The value of the school houses in the State was $30,422,000.

Transportation. The total mileage of railways in the State in January 1. 1913, was for steam railways, 9975 miles, and for inter-urban railways 449 miles. There has been no railway construction of any account in the State in several years.

Finance. The total receipts from all sources for the fiscal year 1913 amounted to $5,423,110. The disbursements for the same period were $5,084,769. At the beginning of the fiscal year there was a balance in the treasury amounting to $1,041,486, leaving the balance at the end of the fiscal year 1913 of $1,375.827. The chief sources of revenue are from the general property tax, from the tax on insurance companies, from the collateral inheritance tax, from fees from corporations, from the motor vehicles tax. The State has no debt of any kind.

Charities and Corrections. The charitable and correctional institutions under the control of the States, with their populations in 1913, are as follows: The Reformatory, Anamosa, 669; Cherokee State Hospital, Cherokee, 1025; Clarinda State Hospital, Clarinda, 1166; School for the Deaf, Council Bluffs, 216; Soldiers' Orphans' Home, Davenport, 559; Industrial School for Boys, Eldora, 409; State Penitentiary, Fort Madison, 558; Institution for Feeble-minded Children, Glenwood, 1362; Independence State Hospital, Independence, 1193; State Hospital for Inebriates, Knoxville, 174; Soldiers' Home, Marshalltown, 814; Industrial School for Girls, Mitchellville, 140; Mount Pleasant State Hospital, Mount Pleasant, 1109; State Sanatorium, Oakdale, 117. The total expenditure for State institutions in 1912 was $10,822,311.

Politics and Government. There was no election for State officers during the year. The term of Governor Clarke expires when the legislature organizes in January, 1915. The next State election is on November 3, 1914. The legislature on January 21 reëlected William S. Kenyon United States senator. The House passed, on March 7, a resolution for the submission of an amendment providing for woman suffrage which must be repassed by the legislature of 1915 before the amendment can be voted on by the people.

Legislation. The legislature met in 1913 and passed several important measures. These include the following: Employers' liability and workmen's compensation law; a measure creating a State highway commission; a measure providing for the submission of a woman suffrage amendment to the people; a measure providing for the submission of initiative and referendum amendments to the people; the presidential primary act patterned after the California law; acts providing for a prevention of unfair competition and discrimination; a measure providing for a non-partisan judiciary; a blue-sky law; and a measure providing for the arbitration of industrial disputes. See also Liquor Regulation.

State Government. Governor, George W. Clarke; Lieutenant-Governor, W. L. Harding; Secretary of State, W. S. Allen; Treasurer, W. C. Brown; Auditor, J. L. Bleakly; Attorney-General, George Cosson; Superintendent of Education, A. M. Deyoe; Adjutant-General, Guy E. Logan—all Republicans.

Judiciary. Supreme Court: Chief Justice, Scott M. Ladd; Judges, F. R. Gaynor, Wm. D. Evans, Horace E. Deemer, B. W. Preston, S. M. Weaver, W. S. Withrow; Clerk, Burgess W. Garrett—all Republicans.

State Legislature, 1913. Republicans: Senate, 33; House, 66; joint ballot, 99. Democrats: Senate, 17; House, 42; joint ballot, 59. Republican majority: Senate, 16; House, 24; joint ballot, 40.

The State representation in Congress will be found in the section *Congress*, article United States.

IOWA, State University of. A State institution for higher education, founded at Iowa City, Iowa, in 1847. The total enrollment in all departments in the autumn of 1913 was 2629, of whom 1476 were in the College of Liberal Arts, and others in the professional schools. The faculty numbered 203. During 1913 the title of the School of Education was changed to that of College of Education, and two new professors were added. A course in home economics with Miss Ruth Wardell was established. There was also organized an extension fund, including the bureau of public administration, the bureau of municipal information, the bureau of social welfare, and other bureaus. The College of Applied Science was developed, and two new chairs were established in the College of Homeopathic Medicine. The productive funds of the university amount to about $250,000, and the income from these to about $12,000. The library contains 100,000 volumes. The president is John G. Bowman.

IRELAND. See Great Britain.

IRIDIUM. See Platinum.

IRON AND STEEL. The production of iron ore, pig iron, and steel showed a noteworthy increase in 1912 as compared with 1911. The quantity of iron ore mined in the latter year did not quite equal that of the year 1910, but the tonnages of pig iron and steel manufactured in 1912 both exceeded the output of these metals in 1911. The quantities of iron ore mined in the United States in 1912 amounted to 55,150,147 long tons, as compared with 43,876,552 long tons in 1911, an increase of 11,273,595 long tons, or 25.69 per cent. In 1912 nearly 85 per cent. or $46,483,798 long tons, were produced in the Lake Superior district, which includes Michigan, Wisconsin, and Minnesota. The production in this district in 1911 was 35,672,804 long tons. In the southeastern district, including Maryland, the Virginias, Kentucky, Tennessee, North Carolina, Georgia, and Alabama, 5,665,386 long tons were produced in 1912, nearly the same quantity as in 1911. The northeastern district, including Massachusetts, Connecticut, New York, New

Jersey, Pennsylvania, and Ohio, produced 2,139,058 long tons in 1912, a slight increase over the production in 1911.

Iron ore was mined in twenty-seven States in 1912 as in 1911. Of these States, four, Idaho, Montana, Nevada, and Utah, produced ores for fluxing only. Part of the production of Colorado was for fluxing and part for pig iron. Michigan produced a small quantity for flux and a small quantity was produced in Missouri for special fluxing use. The remaining States produced iron ore for blast-furnace use only. The rank of the five States producing the largest quantity of iron ore—Minnesota, Michigan, Alabama, New York, and Wisconsin—remained unchanged in 1912. The Minnesota iron ranges produced five-eighths of the total. There were mined in Minnesota in 1912 34,431,768 long tons; in Michigan, 11,191,430; in Alabama, 4,563,603; in New York, 1,2'6,672, and in Wisconsin, 860,600. The following tables show the production of iron in the United States by States in 1911 and 1912:

1911

State	Rank	Mined Quantity, in long tons	Percentage of total
Minnesota	1	24,645,105	56.17
Michigan	2	10,329,039	23.54
Alabama	3	3,827,791	8.72
New York	4	1,061,279	2.42
Wisconsin	5	698,660	1.59
Virginia	6	614,028	1.40
Pennsylvania	7	537,506	1.23
New Jersey	8	466,234	1.06
Tennessee	9	463,835	1.06
Georgia	10	203,889	.46
Missouri	11	65,325	.15
Utah	12	39,908	.09
Ohio	13	15,707	.04
Other States	..	908,256	2.07
Total	..	43,876,552	100.00

1912

State	Rank	Mined Quantity, in long tons	Percentage of total
Minnesota	1	34,431,768	62.43
Michigan	2	11,191,430	20.29
Alabama	3	4,563,603	8.28
New York	4	1,216,672	2.21
Wisconsin	5	860,000	1.56
Pennsylvania	6	517,081	.94
Virginia	7	446,305	.81
Tennessee	8	416,885	.76
New Jersey	9	364,673	.66
Georgia	10	134,637	.24
Missouri	11	43,480	.08
Ohio	12	10,346	.02
Utah	13	7,280	.01
Other States	..	945,387	1.71
Total	..	55,150,147	100.00

In 1912 382 iron ore mines were active, as compared with 374 mines in 1911.

Imports. The imports of iron ore in the United States in 1912 amounted to 2,104,576 long tons, valued at $6,499,690. Of this, Cuba produced approximately 66 per cent. of the ore; Sweden 16 per cent.; Newfoundland and Labrador 7 per cent.; Canada 5 per cent.; Spain 4.4 per cent.; and smaller quantities from Russia, Germany, United Kingdom, Netherlands, and other countries. The quantity of ore exported in 1912 amounted to 1,195,742 long tons, valued at $3,537,289.

World Production. The table below shows the production of iron ore in the principal countries in 1909-12, where statistics are available.

Pig Iron. The production of all kinds of pig iron in the United States in 1912 was 29,726,937 long tons, compared with 23,649,547 tons in

PRODUCTION OF IRON ORE IN PRINCIPAL COUNTRIES. 1909-1912, IN LONG TONS

Country	1909	1910	1911	1912
North America:				
Canada *a*	239,324	231,623	187,807	156,250
Cuba *a*	936,132	1,462,498	1,163,714	1,397,797
Mexico	2	....	(*b*)	(*b*)
Newfoundland	1,004,050	1,108,762	(*b*)	(*b*)
United States	51,294,271	57,014,906	43,876,552	55,150,147
Europe:				
Austria-Hungary	4,503,768	4,592,572	(*b*)	(*b*)
Belgium	196,565	121,024	148,130	(*b*)
France	11,702,756	14,375,984	(*b*)	(*b*)
German Empire and Luxemburg	25,102,819	28,257,579	29,408,812	(*b*)
Greece	468,126	527,040	(*b*)	(*b*)
Italy	497,141	542,578	367,900	(*b*)
Norway	39,758	100,834	(*b*)	(*b*)
Portugal	....	3,307	(*b*)	(*b*)
Russia *c*	(*b*)	(*b*)	(*b*)	(*b*)
Spain	8,647,658	(*b*)	(*b*)	(*b*)
Sweden	3,824,862	5,465,234	(*b*)	(*b*)
United Kingdom	14,804,382	15,226,015	15,519,424	(*b*)
Asia:				
China	*d* 306,000	*e* 130,472	(*b*)	(*b*)
India	83,456	54,626	(*b*)	(*b*)
Japan *f*	(*b*)	(*b*)	(*b*)	(*b*)
Chosen (Korea)	90,569	104,627	(*b*)	(*b*)
Philippine Islands *g*	230	148	216	416
Africa:				
Algeria	876,969	1,048,228	(*b*)	(*b*)
Madagascar	(*b*)	(*h*)	(*b*)	(*b*)
Natal	....	50	(*b*)	(*b*)
Tunis	214,815	327,756	(*b*)	(*b*)
Australia	115,835	157,821	(*b*)	(*b*)

a Shipments. *b* Statistics not yet available. *c* Russia produced 2,581,121 long tons of pig iron in 1909, and 2,936,024 tons in 1910. *d* Output of Tayeh mines. *e* Exports. *f* Japan produced 53,333 long tons of pig iron in 1909, and 66,131 tons in 1910. *g* Estimated by Bureau of Science of Philippine Islands for 1909 to 1911 from castings produced, and by U. S. Geological Survey for 1912 on same basis. *h* Nearly 8 tons of iron (metal) produced in 1910.

1911, an increase of 6,077,390 tons, or 25.7 per cent. The following table shows the production of pig iron by States, arranged in rank of production, in 1911-12:

PRODUCTION OF PIG IRON, BY STATES, IN LONG TONS[a]

States	Rank	1911 Quantity	Percentage
Pennsylvania	1	9,807,073	41.47
Ohio	2	5,310,506	22.46
Illinois	3	2,108,002	8.91
Alabama	4	1,712,211	7.24
New York	5	1,562,756	6.61
Indiana	6	1,163,932	4.92
Michigan			
Missouri	7	395,968	1.68
Colorado			
California			
Tennessee	8	324,648	1.37
Virginia	9	293,642	1.24
West Virginia	10	291,472	1.23
Wisconsin	11	276,807	1.17
Minnesota			
Maryland	12	255,816	1.08
Kentucky	13	95,202	.40
New Jersey	14	40,663	.17
Connecticut	15	9,649	.04
Massachusetts			
Georgia	16	1,200	.01
Texas			
Total	..	23,649,547	100.00

States	Rank	1912 Quantity	Percentage
Pennsylvania	1	12,552,181	42.23
Ohio	2	6,802,493	22.88
Illinois	3	2,887,359	9.71
New York	4	1,939,231	6.52
Alabama	5	1,862,681	6.27
Indiana	6	1,770,628	5.96
Michigan			
Colorado	7	397,781	1.34
Missouri			
California			
Tennessee	8	338,238	1.14
Wisconsin	9	303,370	1.02
Minnesota			
West Virginia	10	274,360	.92
Virginia	11	256,167	.86
Maryland	12	219,546	.74
Kentucky	13	68,760	.23
New Jersey	14	36,876	.12
Connecticut	15	17,366	.06
Massachusetts			
Georgia	16	....	......
Texas			
Total	..	29,726,937	100.00

[a] Bureau of Statistics of the American Iron and Steel Institute.

The old number of furnaces in blast on December 31, 1913, was 313, compared with 266 on July 30, 1913, and 231 on December 31, 1911. The production of the chief grade of pig iron in 1912: Bessemer and low phosphorous, 11,664,015 long tons; basic (mineral fuel), 11,417,886 long tons; foundry and ferrosilicon, 5,073,873 long tons.

STEEL. The production of Bessemer steel ingots and castings in the leading States in 1912 was 10,327,901 long tons; of open-hearth steel ingots and castings, 20,780,723 long tons, or a total production of 31,251,313 long tons. Ohio was the largest producer of Bessemer steel, followed by Pennsylvania and Illinois. Pennsylvania produced the largest amount of hearth steel or 12,408,109 long tons, out of the total amount produced. Ohio ranked second, Indiana third, Illinois fourth. The total electric production of steel in 1912 was 18,309 long tons, as compared with 29,105 tons in 1911,—a decrease of 10,796 tons. In 1912 there were thirteen plants which made steel by the electric process, as compared with a total of nine in 1911.

IRON. According to the estimates of the United States Geological Survey, the quantity of iron ore mined in the United States in 1913 was between 58,000,000 and 60,000,000 long tons. This is the highest record of iron production since its beginning. In the Lake Superior district, where about 85 per cent. of the domestic iron ore is mined, the increase was about 8 per cent. over the production of 1912, or about 50,000,000 long tons. In the Birmingham district of Alabama, the production was about 10 per cent. greater than that of 1912. In Tennessee there was a slight decrease, and in North Carolina, a slight increase. New Jersey and New York both showed slight increases, while Pennsylvania showed a slight decrease. In the Rocky Mountain district of Wyoming, Colorado, and New Mexico, there was a slight decrease. See also METALLURGY.

IRRIGATION. Throughout the world generally the year 1913 was one of considerable activity in the extension of irrigation to new areas but in the United States few new enterprises were undertaken, and little progress was made in settling lands under enterprises previously begun. The progress of the year in different parts of the world is summarized below:

UNITED STATES. Work on the projects of the U. S. reclamation service, begun in former years, was continued throughout the year. The annual report of the U. S. reclamation service for the year ending June 30, 1913, showed that on March 31, 1913, the total receipts credited to the reclamation fund amounted to $80,323,817.44, to which should be added a loan from the treasury of $20,000,000, making the total fund $100,323,817.44. Of this there had been expended up to June 30, 1913, $86,444,087.80. The area included in the government projects on that date was 2,973,048 acres, to 1,290,107 acres of which the service was prepared to furnish water for the season of 1913. The area covered by water-right applications and rental agreements,—that is the area for which the land holders had entered into agreements to pay water-right charges—were 942,272 acres, and the acreage estimated to have been irrigated in 1913 was 721,410 acres. There was, therefore an area of 347,835 acres for which water was ready which was not covered by agreements, and an area of 568,697 acres for which water was ready which was not irrigated in 1913. Under an order dated December 13, 1913, the administration of the Reclamation Service was reorganized and placed in the hands of a board of five members, each of whom had charge of one of the divisons into which the work was divided: (1) Scientific, statistical, and historical division; (2) engineering and technical division; (3) law division; (4) fiscal and accounts division; and (5) operation and maintenance division.

The limited operations under the Carey act (August 18, 1894, granting desert lands to the States on condition that they provide for their irrigation) indicated further the lack of activity in new irrigation enterprises. During the year ending June 30, 1913, there were applied for under this law 298,689 acres, there was segregated under these and previous applications 395,161 acres, and there was patented to settlers but 35,171 acres. From the date of the passage of this law to June 30, 1913, the area applied for was 7,773,359 acres; the area segregated was 3,685,993 acres; and the area patented was 430,048 acres.

The year 1913 witnessed considerable advance in irrigation legislation. California and Texas adopted codes providing for public control of diversions from streams; Oregon and Washington adopted laws looking to State participation in the construction of irrigation works, and several States amended their laws in various particulars. The Supreme Court of South Dakota rendered a decision (St. Germain Irrig. Co. v. Hawthorne Ditch Co., 143 N. W., 124) which largely nullified the irrigation code of that State.

The dry season of 1913 caused a widespread interest in irrigation in sections of the United States where it had not been practiced previously, and many pumping plants for supplying water for irrigation were installed throughout the eastern part of the country.

FOREIGN COUNTRIES. In the western provinces of Canada the situation was much the same as that in the United States. There was very little activity in the extension of irrigation to new territory. The Canadian Pacific Railway, however, was building a dam across the Bow River, which was part of a project for irrigating a large area.

The federal government of Brazil was building storage dams for irrigation in the northwestern states of Brazil, and, under the decree of December 28, 1911, was contributing one-half the cost of other dams built by individuals and syndicates.

The Peruvian government provided for a bond issue of $10,000,000 to furnish funds for building irrigation works. The land to be irrigated lies in the coastal plain, and the scheme includes the colonization of the reclaimed land with white settlers, whose agricultural equipment is to be admitted free of duty.

The Chilean government completed plans for the irrigation of 63,000 acres in the province of Linares, at a cost of $1,100,000. Private parties also were active in irrigation construction.

The Argentine government completed surveys on the Rio de los Sauces for the irrigation of 79,000 acres, at a cost of $3,397,000, and approved the construction of works in the department of La Paz to cost $50,000; and the department of Corboda asked legislative permission to issue bonds to the amount of about $50,000 to be used for the construction of irrigation works.

The acreage of irrigated land in Spain was estimated at about 3,000,000 acres. The government was engaged in the construction of works in the valley of Guadalquivar for the irrigation of 25,000 acres, and had drawn plans for the irrigation of 700,000 acres in the district of Aragon at a cost of $30,000,000.

In Italy irrigation development was quite active. The royal commission of irrigation had approved projects for the irrigation of 150,000 acres in Puglia and Liguria, and projects on the Sila River in Calabria and on the Tirso River in Sardinia which were to cost something over $17,000,000. In its new possessions in northern Africa the Italian government was exploring for underground water. In the region lying between the Mediterranean and the Atlas Mountains water was found at depths ranging from 15 to 150 feet, and it was believed that a large part of this tract could be irrigated from wells.

In Rumania plans were prepared for the irrigation of some 3,000,000 acres between Bucharest and the Danube. This area long had been waste land.

In Asiatic Turkey the plans for the reclamation of Mesopotamia, begun in former years, were being carried out, and works for the irrigation of 125,000 acres in the plains of Konia were being built by a German company. These latter works were about ready to be turned over to the government, which was to operate them, making a charge for the water furnished. Durum wheat was the principal crop to be grown.

The government in India was extending its irrigation systems to new territory. Near the city of Mysore on the Cauvery River a project was under construction which would provide for the irrigation of 150,000 acres at a cost of $3,000,000, and there was a project for the irrigation of 400,000 acres in the delta to the same stream, which was estimated to cost $10,000,000.

The government of Siam decided on the irrigation of the Menam Valley. The cost was estimated at $10,000,000, which was to be raised by a government loan.

In French Indo-China a loan of $17,500,000 was authorized to be used principally for the construction of irrigation works.

In Australia the state of Victoria was proceeding with the settlement of the lands under its works already built, and the state of New South Wales was carrying out the construction of its project on the Murumbidgee River.

It will be noted from the above summary that practically all construction of irrigation works throughout the world, with the single exception of the western provinces of Canada, was being done by government agencies; and in Canada it was being done by a railway company which in some respects is analagous to a government agency. This is significant since, as shown by the Thirteenth Census, about 97 per cent. of the land irrigated in the United States in 1909 was supplied with water by private agencies. It is a well-known fact that, in the United States, almost without exception large private irrigation enterprises have been financial failures, and this has tended to discourage private enterprise. Judged by the same standard—the direct returns on the capital invested —government enterprises in the United States have been financial failures also. However, a government expenditure cannot be judged by this standard, for the indirect benefit from such expenditure may far outweigh the direct benefit and justify enterprises which would be entirely impracticable for private agencies. The same thing is true of the railroad irrigation enterprises. The indirect returns in the shape of passenger and freight tolls may more than repay the entire investment although direct returns are small. In the United States a large part of the money invested in irrigation works has been an involuntary contribution to the general good, made in the belief that the investment would pay. Experience seems to prove, however, that such investments will not pay directly, and throughout the world they are being made by agencies which can get their returns from the indirect benefit arising from the development of previously waste territory.

ISATOPHAN is a lemon-yellow crystalline powder melting at 216 C., soluble in alcohol and alkalies, but insoluble in water or ether. It is tasteless and possesses a slight odor resembling atophan, for which drug it is intended as a substitute. The substance has the same therapeutic effects as atophan, and is therefore used as an anti-rheumatic and uric-acid eliminator, but has the advantage of being tasteless. Its chemical formula is given as, $CH_3O.C_7H_4N.$-C_6H_5COOH.

ITALIAN LITERATURE. Contemporary Italian literature is not unaffected by modern movements of thought and by passing affectations and fads. The year 1913 has brought out, for instance, a brand-new futurist poet, Paolo Buzzi, who promises in *Versi Liberi* to strive as valiantly for notoriety as his colleague Marionetti. The readings of Buzzi and the lectures of Marionetti in public at Milan, Venice, and Rome have been attended usually by riots. The interest in morbid sex psychology, which D'Annunzio stimulated with *L'Innocente, Il Piacere*, etc., reappears in *Il figlio vostro* of G. Chiggiato, a romance of the Nietzschian-Tolstoian type. Social problems of radical hue, which in Italy are not so "modern" as in the United States, are treated in such plays as the *Spine dentro il nido* of E. Rivalta, the *Porta chiusa* of Marco Praga, *Intorno al lume* of T. Monicelli, and *La donna moderna* of Nino Bernini. Imported from Paris is even a feminist play of M. Donnay, *Le illuminatrici*. Special aspects of Italian society—the stock in trade of ordinary production—are reflected in E. L. Morselli's drama *La prigione*, which shows the aristocracy of blood grappling with the financial question, just as D. Nicodemi, who is enjoying some vogue in Paris, treats the economic features of "high-life" in *L'Aigrette* and *Requins*, which have appeared also in Italy. In *La diversa vita* of E. Rivalta and *Il romanzo dello sdegno* of Valcarenghi we have a novel of general psychological analysis, a *genre* that has recently produced several works of note: *Il banchetto di Lazzaro* of V. Picardi, Ugo Ojetti's *L'Amore e suo Figlio*, Maria di Borio's *La fiamma che tempra*, and *Il Cuore in gioco* of Carola Prosperi, all collections of tales. Among novels of intricate plot, with an appeal to the sense of the wonderful, the most noteworthy are *Mio zio il Diavolo* of A. Varaldo, Persio Falchi's *Novelle del demonio*, and a curious study in mental aberration by R. Artuffo, *Il profeta delle rose*. Lino Feriana's *Mamma benedetto* is an interesting collection of tales for children.

But there are portions of the contemporary output that reflect the deeper instincts of the Italians and are more essentially national in character. One of the most surprising features of the Italian consciousness to-day is its unabated interest in antiquity. It would be unjust to refer to an atavistic principle the great vogue of the historical drama and romance, so true is it that this reworking of historic themes shows vital modern aspirations looking toward the future. There is to be sure much static romanticism in Sem Benelli's latest triumph, *La Gorgona*, a drama of love and death on the background of twelfth-century Pisa. Here the historical motive is at best superficial. But Hellenism in its noblest form inspires the *Drammi sattreschi* of E. Romagnoli. There is some serious work behind the *Nerone* of G. Bonaspetti, which centres on the murder of Agrippina and the resulting effects on Nero's conscience. Of much the same subject is the *Agrippina minore* of Pelaez d'Avoine. D. Tumiati continues with two historical plays: *Guerrin Meschino*, for mediæval chivalry, and *Alberto da Guissano* for the patriotism of the revolution. Ettore Moschino has published a *Cesare Borgia*, and Amico-Rosso a *Savonarola*, R. Pentini a *Tiberio Gracco*. The Rome of the eighteenth century peers through the humor of Jondolo's *Goethe a Roma*. Of the next century are the *Giacobina* of G. Marcotti and the *Giovanni Frangipani* of V. Buonmartini. Of national inspiration are *Le sette leggende* of A. Orvieto, narrations in verse, and the *Novelle drammatiche* of G. Morpurgo. Not only the glamor of a great name. but richness of detail as well, lend special interest to the *Pisanella* of D'Annunzio, a study of Byzantine character and costume in medieval Cyprus. Here, on a groundwork of wide scholarship of the same thoroughness for which he is noted, D'Annunzio integrates all the elements of Hellenism, Oriental intensity, and Latin passion with the extraordinary lyric splendor which is the essence of his art. It is, on the other hand, rather the narrower aspect of D'Annunzian sensualism that reappears in his most recent *Ferro*. Meanwhile the vogue of *Parisina* shows no decline. The diary of D'Annunzio, *Memoranda*, and several novelettes, among them *Leda senza il cigno*, have appeared. The enthusiasm aroused by these works testifies to the fact that advertisement plus genius still maintains the poet of Pescara in the front rank of contemporary Italian letters.

With similar assiduity the Italians are cultivating what is possibly the most fibrous branch of current literature, the analysis of regional life. This, studied in its minute and most essential characteristics, still recognizes Fucini, for Tuscany, and Salvatore di Giacomo, for Naples, as its most masterly interpreters. Grazia Deledda, for Sardinia, has had a prolific year in the tales *Chiaroscuro* and the romances *Canne al vento* and *Colombi e sparvieri*. Beltramelli, for Umbria, has published *Le novelle della guerra* and a volume of verse, *Soliochio*. Pirandello, Pastonchi, and Zuccoli have been issuing at least one tale a month. C. Carozzi, for the Italian Alps, has published *Su per L'erta*, while sailor-life is studied in *I marinari* of R. Piva. Ability of much promise has appeared in a newcomer, Paola Driga with *La Fortuna*. Her tales, like the *Mirti all'ombra* of Contri, are studies of sombre outline, while in *La vita di tutti* of Giulio Caprin there is a lighter humorous touch. The region of Trieste is reflected in the newly collected *Scritti vari* of Giglio Padovan. For Venice, Antonio Pilot, a passionate cultivator of Venetian memories, who has just published a remarkable *Antologia della lirica veneziana,* comes out as a poet himself in *Cocolezzi sempiezzi matezzi in lengua veneziana.* G. C. Santini has some rollicking Roman dialect verse in his *Napoleone.* It is Florence that inspires the *Rime del Marzocco* of Rina Pierazzi and a four-act play of A. Novelli, *La cupola.*

It will be seen then that the historical drama and the regional tale are the characteristic representatives of current Italian interests. Meanwhile there is a rich scattered production, especially in the lyric, along individual lines. Milly Dandolo, a girl of eighteen, has published some promising poems. The *Canti* of Maria Cardini and *La Scomparsa* of Maria Stella show well-defined personality. L. Zambarelli in *Frate Francesco* continues his remarkable religious poems. A new aspect of the scholar A. Serena is shown in his *Versi,* while some noteworthy results are obtained by P. Briganti in *Canti del meriggio,* in *Il mazzo di carte* of G. Giusta; *La Lucerna* of G. Zucca and *Canti di Trifoglieto* of E. Fabretti. During the year public testimonials have been offered to Arturo Colautti and Aurelio Costanzo. Special tribute has been paid to Alfredo Oriani, whose collected theatre is now available, and to Mariello Taddei, the Florentine journalist and poet, who died at twenty-five. Graf, De Gubernatis, and Padovan died during 1913.

ITALIAN SOMALILAND. An Italian colony and protectorate in northeast Africa, separated from the British East Africa Protectorate by the river Juba. The area is 365,400 square kilometers (141,081 square miles), and the population is estimated at 300,000. The imports in 1912 were valued at 5,533,462 lire, and the exports at 2,055,018. The budget for 1912-13 was estimated to balance at 6,534,856 lire. A civil governor administers the country —in 1913, Salvago (Marquese) Raggi—residing at Mogadisho.

ITALY. A constitutional monarchy of southern Europe, hereditary in the male line of the house of Savoy. It includes the Apennine Peninsula and the islands of Sicily and Sardinia. The capital is Rome.

AREA AND POPULATION. In the table below will be found the compartimenti into which Italy is divided, the number of provinces in each compartimento, the area in square kilometers, and the *de facto* population February 10, 1901, and June 10, 1911 (final returns):

	P.	Sq. kms.	1901	1911
Piedmont	4	29,367	3,317,401	3,424,450
Liguria	2	5,278	1,077,473	1,197,231
Lombardy	8	24,085	4,282,728	4,790,473
Venetia	8	24,547	3,134,467	3,527,360
Emilia	8	20,701	2,445,035	2,681,201
Tuscany	8	24,105	2,549,142	2,694,706
The Marches	4	9,712	1,060,755	1,093,253
Umbria	1	9,709	667,210	686,596
Rome	1	12,081	1,196,909	1,302,423
Abruzzi e Molise	4	16,529	1,441,551	1,430,706
Campania	5	16,295	3,160,448	3,311,990
Apulia	3	19,109	1,959,668	2,130,151
Basilicata	1	9,962	490,705	474,021
Calabria	3	15,075	1,370,208	1,402,151
Sicily	7	25,739	3,529,799	3,672,258
Sardinia	2	24,109	791,754	852,407
Total	69	286,682*	32,475,253	34,671,377

* 110,682 square miles.

The total population as estimated January 1, 1912, was 34,813,975. The total *de jure* population in 1911 was 35,845,048 and in 1901 32,965,504. The marriages in 1912 numbered 264,457 (260,198 in 1911); births, 1,181,560 (1,141,036); deaths, 683,124 (790,302); still-births (included in the forgoing), 47,574. Oversea emigration (1912), 403,306; to Europe and other countries by way of the Mediterranean, 308,140; total, 711,446. Total 1911, 533,844 (262,779 oversea); 1910, 651,475 (402,779); 1909, 625,437 (399,282); 1908, 486,674 (238,573); 1907, 704,675 (415,901). To the United States came, in 1912, 267,637; 1911, 191,087; 1910, 262,554; 1909, 280,351; 1908, 131,501; 1907, 298,124. Immigrants 1911, 218,998; 1910, 161,148; 1909, 134,210; 1908, 300,834; 1907, 248,428. The communal population of Naples (1911) was 678,031; Milan, 599,200; Rome, 542,123; Turin, 427,106; Palermo, 341,088; Genoa, 272,221; Florence, 232,860; Catania, 210,703; Bologna, 172,628; Venice, 160,719; Messina, 126,557.

AGRICULTURE. The rich soil yields fruits in abundance. Wine is produced in quantities for consumption and export. From Tuscany, Liguria, and the province of Bari come olives and olive oil. In the table below are to be found area in thousands of hectares under main crops in 1912, and production, in thousands of quintals, for consecutive years, 1913 figures subject to slight revision:

	1000 ha.	1000 quintals			
	1912	1910	1911	1912	1913
Wheat	4,755	41,750	52,362	45,102	58,352
Rye	123	1,382	1,346	1,343	1,420
Oats	508	4,148	5,947	4,109	6,310
Barley	244	2,065	2,349	1,830	2,352
Corn	1,594	25,839	23,796	25,063	27,500
Rice	146	4,380	4,792	4,395	5,432
Beans	598	5,098	5,168	4,022	.....
Potatoes	288	15,394	16,912	15,326	.....
S. Beets *	54	16,791	15,844	17,430	26,500
Hemp †	85	868	674	949	.....
Flax †	9	31	28	25	.....
Citrous fruits	114	7,607	7,865	6,422	.....
Chestnuts	652	6,075	8,290	4,980	.....
Tobacco	8	.....	.....	180	85
Vines ‡	4,454	29,293	42,654	44,123	52,000
Olive oil	2,313	1,384	2,442	915	.....
Olives		9,357	13,529	6,097	.....

* Sugar beets. † Production of fibre. ‡ Production in hectoliters of wine.

The horses in the country (1908) numbered 849,723; mules, 388,337; cattle, 6,198,861; buffaloes, 19,266; sheep, 11,162,926; goats, 2,714,878; swine, 2,507,798. The value of forest products was given in 1909 at 124,132,000 lire.

Sericulture is a wide-spread industry, the average annual output of cocoons being estimated at 52,563,000 kilograms, and the output of silk at 5,654,000 kilos.

MINING, ETC. The number of iron mines in operation in 1911 is reported at 31, with 2055 work people,and an output of 373,786 metric tons of ore, valued at 6,767,519 lire; ferramanganese, with 78 workers, 6842 tons, 58,338 lire; manganese 9, with 165 workers, 3515 tons, 110,120 lire; 9 copper, 797 workers, 68,136 tons, 1,225,593; 88 zinc, lead, and lead and zinc, 14,318 workers, 139,719 tons zinc (15,369,972 lire), 38,458 tons lead (6,540,149 lire),and 550 tons lead and zinc (24,500 lire); 1 silver, 43 workers, 2441 tons, 81,644 lire; 9 mercury, 949 tons, 83,200 lire; 3 argentiferous antimony, 304 workers, 2441 tons, 81,644 lire; 9 mercury, 949 workers, 97,803 tons, 4,664,597 lire; 10 iron and copper pyrites, 2142 workers, 165,273 tons, 3,141,044 lire; 35 coal, etc., 3061 workers, 557,137 tons, 5,021,506 lire; 352 sulphur, 19,293 workers, 2,682,766 tons, 31,097,336 lire; 18 asphalt and bitumen, 1861 workers, 188,681 tons, 3,065,027 lire; 12 boric acid, 442 workers, 2648 tons, 1,006,240 lire. The quarries employed 70,767 work people in 1911, and their total output was valued at 61,048,203 lire; the lime and brick kilns employed 99,354 workers, and their output was valued at 173,595,764 lire.

FISHERIES. The value of the fisheries output was given in 1909 at 22,407,000 lire (tunny-fish, 3,485,000 lire).

COMMERCE. In the table below are shown imports for consumption and exports of domestic produce, with imports and exports of coin and bullion (including all precious metals), for consecutive years, values in thousands of lire:

	Imports		Exports	
	Mdse.	C. & B.	Mdse.	C. & B.
1908	2,913,275	28,052	1,729,263	21,012
1909	3,111,710	18,001	1,866,890	54,068
1910	3,245,976	31,066	2,079,977	48,116
1911	3,389,298	28,896	2,204,278	42,092
1912	3,604,104	25,906	2,396,145	41,745

The transit trade in 1911 amounted to 78,754,000 lire; in 1910 to 77,878,000; 1909, 67,050,000; 1908, 54,101,000. Some of the principal articles of import and export in 1911 are shown below:

Imports	1000 lire	Exports	1000 lire
Cereals	397,800	Silk	350,400
Cotton	348,100	Cotton textiles	183,300
Coal	278,300	Silk "	104,100
Chem. prods.	195,000	Fruits *	98,800
Silk	158,500	Chem. prods.	79,400
Timber	146,700	Vine	67,800
Machinery	143,500	Hemp	66,400
Skins	125,200	Cheese	63,000
Animals	93,900	Citrous fruits	60,100
Iron	91,400	Preserves	53,100
Wool	85,000	Wooden wares	53,000
Iron mfrs.	83,100	Olive oil	45,100
Implements	70,400	Skins	43,400
Copper, etc.	68,700	Eggs	42,100
Fish	60,500	Sulphur	41.400
Seeds	54,300	Hats	40,300
Cotton textiles	53,400	Marble, etc.	39,400
Silk "	53,400	Cotton yarn	36,600
Woolen "	52,100	Coral	31,000
Coffee	42,400	Pastes	30,300
Wooden wares	34,200	Auto's	29,100
Tobacco	34,100	Rice	28,400
Rubber goods	31,600	Ships	27,600
Gems	31,400	Legumes	22,000

* Other than citrous.

The principal countries of origin and destination follow, values (1911) in thousands of lire: Germany, 550,200 imports and 301,200 exports; United Kingdom, 509,800 and 22,800; United States, 415,300 and 247,200; France, 327,200 and 206,200; Austria-Hungary, 288,900 and 184,800; Russia, 234,800 and 50,900; Rumania, 120,900 and 23,400; British India, 172,200 and 21,900; Argentina, 106,800 and 166,200; Belgium, 82,000 and 51,900; China, 53,200 and 2100; Switzerland, 77,600 and 203,600; Brazil, 50,300 and 42,600; Egypt, 41.500 and 61,000; Japan, 31,300 and 2100; European Turkey, 34,400 and 54,300; Spain, 29,900 and 16,400; Tunis, 22,500 and 9500; Asiatic Turkey, 19,900 and 44,100.

The total vessels entered in the 1911 trade numbered 173,437, of 56,056,306 tons. Of these, 159,647 of 35,924,881 tons (66,546 seamers, of 32,990,606 tons) were Italian and 13,790, of 20,131,425 tons (12,665 steamers, of 20,008,751 tons) were foreign. Cleared, 173,353 vessels, of 56,082,448 tons; of these, 159,552, of 35,945,206 tons (66,518 steamers, of 33,004,937 tons) Italian, and 13,801, of 20,137,242 tons (12,663 steamers, of 20,014,104 tons) foreign.

The merchant marine included January 1, 1912, 5470 vessels, of 1,107,985 tons (757 steamers, of 696,994, and 4713 sail, of 410,991).

COMMUNICATIONS. There were in operation March 1, 1913, 17,634 kilometers of railway lines, of which 13,769 were operated by the state, which actually owned 13,632 kilometers. There were 5150 kilometers of tramways. During the year there was in progress the improvement and re-location of the Rome-Naples connection, with the result that 22½ miles were to be saved. The station at Naples was being considerably increased. The Italian electric system was being extended by a second Giovi line from Sampierdarena to Ronco, and a tunnel was being constructed to connect Genoa at the new Brignole station with the east side of the port. In November a railway line from Soverato to Sanvenere was started. The new line was to be about 75 miles in length and a contract representing about one-sixth of the entire distance was begun. It will connect Soverato with Chiarazalle, and run through mountainous country with many engineering difficulties. Telegraph lines (June 30, 1911), 51,172 kilometers; wires, 311,584 kms.; state stations, 5874; railway and other, 1994. Marconi stations, 20; on board, 125. Length of urban telephone lines, 12,089 kms.; wires, 192,838 kms.; interurban lines, 31,354 kms.; wires 60,905. Post offices, 11,089.

FINANCE. The lira (whose par value is 19.295 cents) is the unit of value. In the table below are shown actual revenue and expenditure for consecutive years, in lire:

	1909-10	1910-11	1911-12
Revenue	2,602,163,326	2,838,164,212	2,682,640,378
Exp'diture	2,551,286,013	2,753,625,043	2,623,425,632

The budget estimate for 1912-13 was 2,645,994,671 lire revenue and 2,630,172,684 lire expenditure. The budget for 1913-14 (as accepted July 17, 1913) estimated the ordinary revenue at 2,397,733,541 lire, derived as follows: 56,091,495 from state domains, railways, etc.; 500,800,000 from direct taxes; 334,750,000 from taxes on transactions (stamps and registration, mortgages, etc.); 1,123,722,990 from indirect monopoly 327,030,000, salt monopoly 89,000,000, quinine monopoly 2,700,000); 196,792,000 from revenue-earning administrations (posts 122,000,000, telegraph and telephones 40,300,000, etc.); 87,265,324 from repayments; 34,247,500 from various and 64,064,235 from special sources. Extraordinary revenue, 259,262,429 lire; making the total revenue, ordinary and extraordinary, 2,656,995,970 lire. Ordinary expenditure, 2,126,662,936 lire, distributed as follows: 638,624,948 treasury (359,639,029 interest on the consolidated debt, 133,709,972 floating debt, etc.), 328,269,413 finance (expenses of administration and collection of taxes, etc.), 363,652,430 war, 226,707,951 marine, 137,364,714 instruction, 132,990,829 interior, 132,198,171 posts and telegraphs, 58,215,416 public works, 55,476,780 justice, 27,735,532 agriculture, industry, and commerce, 25,156.747 foreign affairs.

The total capital of the debt stood July 1, 1912, at 13,429,360,000 lire (consolidated 10,052,311,000, redeemable 3,971,568,000, treasury bonds 207,268,000, current accounts 72,947,000, paper money 479,054,000; total 14.783,148,000, minus 1,353,788,000 gold in treasury). Interest, 523,075,574; amortization, 1,921.047.

The budget, as presented by Sr. Tedesco on December 20, showed a surplus of 25,000,000 lire, which would be applied on the cost of the war in Tripoli, together with a surplus of 112,500,000 lire for 1912-13, and 37,500,000 lire for 1913-1914. The cost of the war thus far was estimated at 950,000,000 lire.

NAVY. The number and displacement December 1, 1913, of warships built and building, of 1500 or more tons, and of torpedo craft of 50 tons and over, were as follows: 2 battleships (dreadnought type) having a main battery of all big guns (11 inches or more in calibre), of 40.940 tons, built, and 7, of 172,760 tons, building; 8 battleships (pre-dreadnought type), of 96,100, built; 9 armored cruisers, of 74,020 tons, built; 7 cruisers, of 20,030 tons, built, and 3, of 6223 tons, building; 28 torpedo-boat destroyers, of 10,987 tons, built, and 19, of 13,730 tons, building; 68 torpedo boats, of 11,584 tons, built, and 2, of 240 tons, building; 19 submarines, of 5475 tons, built. Total tonnage built, 259,136; building, 192,953—in all, 452,089 tons. Excluded from the foregoing are ships over twenty years old, unless reconstructed and re-armed within five years; torpedo craft over fifteen years old; transports, colliers, repair ships, torpedo depot ships, and other auxiliaries. Italy ranks seventh in the list of the eight great naval powers. The personnel of the navy is composed of 37,101 officers and men, including 1 admiral, 18 vice-admirals, 14 rear admirals, 131 captains and commanders, and 1011 other line officers. Air craft April 7, 1913: 8 military dirigibles on hand and 2 ordered, and 100 military aeroplanes (including monoplanes, biplanes, and hydro-aeroplanes) on hand and 30 ordered. See also AERONAUTICS.

Italy has a shipbuilding programme extending to the year 1917-18. A certain sum is allowed each year for new construction and maintenance. As the number and type of vessels to be laid down each year is determined by the minister of marine, it is not known what the construction for the year will be until the navy department has made its decision. The minister of marine is responsible to the Parliament, and is aided by an under-secretary of state.

If construction now under way proceeds without delay, Italy will have by 1916 ten dreadnoughts in commission—the *Dante Alighieri*, completed 1912; the *Conte di Cavour*, the *Leonardo da Vinci*, and the *Giulio Cesare*, to be completed 1914; the *Andrea Doria* and the *Caio Duilio*, launched March 30 and April 24, 1913; the *Dandolo*, the *Morosini*, the *Mazzini*, and the *Mameli*, reported to have been begun in 1913. The second-class cruiser under reconstruction under the name *Libia* was originally the *Drama* ordered for Turkey and seized by Italy during the Turko-Italian War. The *Marsala* and the *Nino Bixia*, now building at Castellamare, are smaller cruisers of the type of the *Quarto* completed 1912. The *Basilicata* and the *Campania*, building for protection and patrol duty, are third-class cruisers.

Two days after the death, on December 20, 1913, of General Vittorio Cuniberti (q.v.), called by the London *Times* "the father of the dreadnought," the ministry of marine adopted his plans, opposed for years by Italian naval experts, for four new battleships—the *Vittorio Emanuele*, *Regina Elena*, *Roma*, and *Napoli*. These vessels will combine high speed with heavy armament, for use within a limited area. Italy has lagged behind the nations in acknowledging officially the naval genius of Cuniberti. Great Britain, Germany, Russia, Japan all consulted him and adopted his ideas; he assisted in German naval development, helped to build up the Japanese fleet, and reconstructed the Russian navy after the war with Japan. Dead, Italy mourns him and approves his projects. (See also BATTLESHIPS and NAVAL PROGRESS.)

GOVERNMENT. Under the constitution of 1848, as subsequently amended, the king is the executive acting through a responsible council. The legislative power rests with the king and a parliamentary body composed of a senate (whose members are the princes of the royal house over twenty-one years of age, and an unlimited number—about 390—of eminent men nominated by the king for life) and a chamber of 508 deputies popularly elected for five years.

The reigning king (1913), Victor Emmanuel III., was born November 11, 1869; in 1896 he married Princess Hélène of Montenegro. He succeeded to the throne upon the assassination of his father July 29, 1900. Heir-apparent, Prince Humbert, born September 15, 1904.

The ministry (as constituted October 1, 1913) was as follows: G. Giolitti, premier and minister of the interior; A. (Marchese) di San Giuliano, foreign affairs; P. Bertolini, colonies; C. Finocchiaro-Aprile, justice; F. Tedesco, treasury; General P. (Conte) Spingardi, war; Rear-Admiral Millo, marine; L. Credaro, instruction; E. Sacchi, public works; F. S. Nitti, agriculture, etc.; posts and telegraphs, F. Tedesco, acting.

HISTORY

IMPERIALISM AND THE SOCIAL DEMOCRATS. The militaristic and imperialistic enthusiasm which had made the Turco-Italian War possible subsided rapidly after the conclusion of the Treaty of Lausanne (October 15, 1912; see 1912 YEAR BOOK); and the high cost of living, coupled with the prevalence of unemployment, was an active agency in stimulating resistance to the increased financial and military burdens. The occupation of Libya might be gratifying to Italian patriotism, but it cost about $200,000 a day. Then in addiion to the enormous military expenditure, millions must be spent on harbors, docks, railways, and improvements, if the newly-acquired province was to be worth anything, and over and above the cost of garrisoning and improving Libya, millions more would be demanded to make Italy's navy and army impressive enough to comport with her new dignity and strong enough to defend her new position. Altogether it was an expensive undertaking. Other parties were willing to make the sacrifice, or at least to ask the taxpayers to make the sacrifice, for the glory of Italy, but the Social Democrats set themselves squarely against all further expenditure on the conquest of Libya. On June 14 the majority of the Chamber voted the 101,000,000 lire ($20.200,000) demanded by the ministry for the subjugation of the Arabs, but it was plain that socialist criticisms had annoyed the government. On June 1 the premier had been driven to say that, "If it becomes necessary an appeal to the country will be made in the interest of national defense. It is the firm intention of the government to demand nothing from the lower classes, but to levy new taxes on the solid basis of real wealth." The Socialists, however, continued to find fault, and alleged that in order to obtain funds for the Libyan expedition the ministry had resorted to disguised loans, and appropriated the anticipated excess of the income-tax receipts as far in advance as 1930. Vice-Admiral Pasquale Leonardi Cattolica, who as minister of marines had been subjected to criticism on account of the proposed naval increases, resigned on July 28, ostensibly on account of overwork, and was succeeded by Vice-Admiral Enrico Millo, the leader of the famous raid on the Dardanelles of July, 1912.

The General Election. In calling a general election for October 26, Premier Giolitti gave out a statement of policy which emphasized the benefits of colonial expansion and the need for military occupation of the interior of Libya. He declared that the armament of Italy was to be strengthened, and urged that measures be taken for the regulation of labor disputes, the provision of accident insurance for workmen, and the institution of educational and hygienic reforms. With this programme Signor Sonnino, leader of the Constitutional Opposition, found little fault; but in a manifesto to his supporters he advocated an extension of old age pensions in addition to the reforms projected by the government. There was not so much interest in these formal programmes, however, as in three other features of the election: (1) in what way the extension of suffrage would affect the result, (2) to what degree the Socialist anti-imperialistic propaganda would be successful, and (3) to what extent the Catholics would participate in the polling.

The electoral reform law of 1912, as noted in the last Year Book, enfranchised all males over 21 years of age, save those illiterates, under 30, who have not served in the army. The number of eligible voters was thus increased from 3,247,722 to 8,635,148. Considerable anxiety was felt about the effect of enfranchising the great mass of ignorant soldiers, but the results were reassuring. To be sure, some rioting occurred at Cesovia, Aversa, Amalfi, Catania, Bari, and Palermo; but in general the balloting was orderly. By no means all of the new electors took advantage of their right to vote; in many districts the percentage of abstentions rose as high as 50 per cent., and in two districts of Rome hardly more than one-fourth of those eligible voted. It was natural that the Socialists and Radicals should gain by the enlargement of the electorate. The large towns, with the notable exception of Rome, gave the Radicals and Socialists large gains. The Socialist representation rose from 41 to 78; but still remained an insignificant minority in the Chamber. This fact might be interpreted as an indication that popular sentiment continued to favor the annexation of Libya; or again, it might mean that only a small part of the population approved the extreme anti-clericalism of the Socialists.

The third, and probably the most interesting feature of the election, was the part played in it by the Catholics. Hitherto a great number of loyal Catholics had refrained from voting at the express desire of the Pope. Pope Pius IX., it will be remembered, had ordered that while the government refused to recognize the rights of the papacy, Catholics should not take active part in politics. This prohibition, the *non expedit* as it is called, enforced by Leo XIII., was not maintained in all its vigor by Pius X., and in the present election remained operative in only 178 districts. In the remainder of the 508 districts many Catholics exercised the suffrage, and in one place the bishop was the first elector to cast his ballot. In most of these districts the Liberal, or Constitutional-Democratic candidate was supported against Socialists or Republicans; elsewhere, in order to prevent the election of an anti-clerical, the Catholics put up and elected a candidate of their own, with the result that 33 avowed clericals were returned. The support given to Liberal candidates gave rise to a rumor that the government had reached an understanding with the clericals, and Count Gentiloni, president of the Catholic Electoral Union, was quoted in the *Giornale D' Italia* as saying that in almost 280 districts the Catholics had voted for moderate candidates who promised to oppose anti-clerical legislation, that over 100 of those elected had given pledges in writing to Count Gentiloni, and that in the new Chamber 230 of the 508 votes would be controlled by the Catholic party. The statements were subsequently denied, and there seemed to be no indication that the Catholics would abandon their purely defensive attitude; nevertheless, the anti-clerical press was loud in its protests against clericalism. The new Chamber is composed as follows: Nationalists and Catholics, 35 (gain, 14); Liberals or Ministerialists, 260 (loss, 72); Constitutional Democrats, 48 (gain, 8); Radicals, 70 (gain, 19); Reformist and Organized Socialists, 78 (gain, 37); Republicans, 17 (loss, 6). It may be noted that the famous ex-priest, "Father" Murri, was defeated, as well as the director of the rabidly anti-clerical journal, *l'Asino*. Ex-minister Nunzio Nasi was triply elected from Sicily, where he is still regarded as a hero, despite the fact that he has been convicted of corrupt practices.

The Senate of Italy is appointive rather than elective. Thirty-nine appointments were made by the king with the consent of the council; of the 39, 3 were Socialists. See also Socialism.

The New Parliament. The new Parliament assembled to hear the speech from the throne on November 27. In the speech, the government emphatically reiterated its determination to complete the work of pacification in Libya, and expressed the hope that the new colony would attract Italian emigrants. The church was to be free in its religious functions, but not to interfere with the state. For the extension of education and for the maintenance of defense, new taxation would be needed, but no new taxes would be imposed on the poor. On the following day the Chamber elected the Liberal, Signor Marcora president, by 304 out of 474 votes, Signor Prampolini (Socialist) receiving the next highest number of votes (81); and then proceeded to discuss the speech from the throne. The debates that followed were heated and often disorderly. Once the sitting was suspended after Sr. Ciccotti (Socialist) had recounted Sr. Giolitti's somewhat dubious relations with the Banco Romano some years ago. On another occasion the Socialists shouted "Down with the House of Savoy," and sang the "Internationale." At last, on December 19, the Right Centre, and Radical Left united to give the ministry a vote of confidence. Against the 362 affirmative votes, 90 Republicans and Socialists registered their useless negatives, and 13 Radicals abstained. During the course of his explanations before the Chamber, Premier Giolitti made the important announcement that he personally favored divorce, although he believed the country was not yet ready for a divorce law. He promised, however, to bring in a bill to provide that civil marriage must precede the religious ceremony. A Republican resolution in favor of divorce was rejected by 228 to 123 votes.

Foreign Policy. In December, Signor San Giuliano made a full statement of Italy's foreign policy. In retrospect, he observed that the powers of the Triple Alliance had acted in harmony throughout the Balkan crisis, and that the independence of Albania was sincerely desired by Italy. He went on to say: "As for the Ægean Islands, which we at present occupy, we shall base our actions on the Treaty of Ouchy [Lausanne, see 1912 Year Book, Turco-Italian War]. . . . Italy continues to affirm and maintain the principle that no great power should profit by the present Oriental crisis to extend its territory. The maintenance of the territorial *status quo* and of the present equilibrium, therefore, continues to be the steadfast purpose of Italian policy. . . . To this end, the integrity and strength of Turkey must be assured; Italy is, therefore, disposed to lend effective aid to the Ottoman empire, and to participate in its future economic development." "The day for a policy of renunciation on the part of Italy is past, and cannot return. But in her days of prosperity and puissance, Italy will abide by the promise that once in less happy days she made to Europe. In short, Italy hopes to be in Europe, in the Mediterranean, and in the entire world, an element of order, equilibrium, and peace."

Other Events. The old grievance against Austria-Hungary was revived in September by an unpleasant incident in Trieste, a town still claimed for Italy by the "irredentists." The Austro-Hungarian governor of Trieste issued a decree, based on an old law of 1867, expelling from the province of Trieste all foreigners engaged on the public works. "Foreigners," of course, meant Italians, and the Italian press was bitter in its complaints. Only a week previous, the Italian general, Caneva, warmed by his cordial reception in Vienna, had declared "*Irredentism* in Italy is dead." In November, there was a fight between Austrian and Italian students at the University of Gratz. In Rome the defeat of the Radical-Republican-Socialist combination caused the resignation of Mayor Nathan. The minister of posts and telegraphs, Signor T. Calissano, died on September 21. Charges of corruption, in connection with the construction of the new palace of justice occupied much attention in May, and in July resulted in the resignation of two deputies, Tomaso Mosca and Riccardo Luzzato. See also articles on Arbitration, International; Libya; Roman Catholic Church; Turkey and the Balkan Peoples.

IVORY, Vegetable. See Horticulture, under *New Fruits and Plants.*

IVORY COAST. A colony of French West Africa (q.v. for area, population, etc.). A delimitation committee proceeded in 1909 in conjunction with Dutch officers representing the Liberian government to determine the boundaries; as the results are not yet published it is impossible to give other than a tentative area for the Ivory Coast. The inhabitants are Agni, fetishists and polygamists, of the same family with the Ashanti; Mandé, part Mohammedan, part pagan; the indigenes of the lagoons, and various tribes of the southwest grouped under the name Kroumen. There are two well--defined regions—the lower forest zone, peopled thinly by pagan tribes of low grade; the upper savannah zone, where Islam has exercised a civilizing influence. Mahogany and other woods, palm nuts and oil, rubber, manioc, and peanuts are produced. Stock-raising is ill developed, the animals being half wild and poorly cared for. The geology of the country is little known and the mining industry is embryonic. The total imports for 1911 were valued at 20,566,940 francs, and the exports at 18,242,832 francs (mahogany, 23,812,368 kilograms; palm nuts, 5,251,426 kg.; palm oil, 6,625,498 kg.; rubber, 1,263,345 kg.). Vessels entered (1910), 344, of 741,439 tons. A railway from Abidjan reaches the N'Zi at Dimbokro (183 kilometers). Thence a line completed, September 1, 1912, departs for Bouaké (316 km.), whence it is to be extended north to the frontier. Bingerville is the capital, with 78 European and 780 native inhabitants; Lahou has 78 and 3050; Bassam, 164 and 2832; Abidjan, 110 and 613. The governor in 1913 was G. Angoulvant.

JACKSON, Joseph Cooke. An American lawyer and soldier, died May 22, 1913. Born in Newark, N. J., in 1835, and a graduate of Yale College, he studied law at New York and Harvard Universities, and in 1860 began the practice of law in New York. On the fall of Fort Sumter he volunteered for service; in 1862 was promoted to be captain for gallantry, and in the same year was commissioned lieutenant-colonel of the 26th New Jersey Infantry. In 1865 he was breveted brigadier-general for faithful and meritorious services in the field. He resigned from active service January 5, 1863. During the war he was appointed by Secretary Stanton special war department commissioner of the United States Naval Credit, and established 1900 naval enlistments. In 1864 he was admitted to the United States Supreme Court, and resumed general law practice. For nearly thirty years he was attorney and counsel for many corporations, and was an officer in philanthropic and patriotic societies. He was authority for important military reports and records, and was the author of occasional orations, addresses and essays on legal, historical, literary, and business topics. Several of these were published in pamphlet form.

JACKSON, William Purnell. United States senator (Republican) from Maryland. Born in Salisbury, Md., in 1868, he was educated in the public schools, and at the Wilmington Conference Academy. His father was engaged in the lumbering business and in 1887 Senator Jackson became a partner. He took a prominent part in politics in Maryland, and was a member of the 59th and 60th Congresses.

He is an officer or director of many important financial institutions. He was appointed to succeed the late Senator Rayner, on November 29, 1912.

JAMAICA. A British crown colony; the largest of the British West Indian islands. Area, 4207⅛ square miles; population (1911), 831,383 (15,605 white, 163,201 colored, 630,181 black, 22,396 East Indian). Capital, Kingston (57,379 inhabitants). Area under sugar cane (1911-12), 34,766 acres; coffee, 24,473; bananas, 82,435. Cotton and cinchona are grown, and St. Ann's, Hanover, Westmoreland, and St. James cattle are raised. Imports in 1911 amounted to £2,865,553 (£2,614,943 in 1910); exports to £2,948,067 (£2,568,221). The principal articles of export (values for 1911) are bananas (£1,456,581), sugar (£247,413), coffee (£154,131), dyewoods (£107,277), cacao (£101,448), rum (£85,916), pimento (£83,252), ginger (£58,886), oranges (£46,984). Railways in operation, 184.35 miles (Kingston to Montego Bay, 112.69; Spanish Town to Ewarton, 17.16; Bogwalk to Port Antonio, 54..50). There are excellent roads. There are internal and external telegraphs and an efficient telephone service. Tonnage entered and cleared (1911), 4,319,112. The revenue and expenditure for 1911-12 were, £1,356,092 and £1,350,551 (£1,169,543 and £1,169,991 in 1910-11). The public debt stood March 31 1912, at £3,910,620. Governor appointed 1913, Sir W. H. Manning.

Turks and Caicos Islands, Cayman Islands, Morant Cays, and Pedro Cays are administratively attached to Jamaica.

JAMES, Ollie M. An American public official who took his seat in the Senate from Kentucky in the Sixty-third Congress (see Kentucky). He was born in Crittenden County, Ky., in 1871, and received an academic education. He was admitted to the bar in 1891, took an active interest in politics, was a delegate to the Democratic national convention in 1896, a delegate-at-large in 1904 and 1908, and in each year chairman of the delegation. In 1903 he was elected to the Fifty-eighth Congress, and reëlected to successive Congresses up to and including the Sixty-second. In 1908 he seconded the nomination of William J. Bryan for President, and he was elected United States senator on January 10, 1912, for the term 1913-20. Mr. James was prominent in the Democratic national convention which nominated Woodrow Wilson for the presidency. He was elected permanent chairman of the convention.

JAPAN. A Far Eastern constitutional empire. The capital is Tokyo.

Area and Population. The principal islands of Japan proper have an area of 24,352.25 square ri; these and their adjacent islets total 24,794.36 square ri (147,657 square miles). An estimate of 1912 placed the population at 52,200,685. The Japanese dependencies have an area of 18,664.02 square ri (111,150 square miles): Chosen (Korea), 14,123 sq. ri, or 84,106 sq. mi.; Taiwan (Formosa), 2,324.11 sq. ri, or 13,841 sq. mi.; Hokoto (Pescadores), 7.99 sq. ri, or 48 sq. mi.; Karafuto (Japanese Sakhalin), 2208.92 sq. ri, 13,155 sq. mi. To these should be added the Manchurian leasehold of Kwanto (Kwantung), with an area of 1221 sq. mi. The population of the dependencies as estimated in 1912 was about 18,000,000. The following table shows for Japan proper the area of principal islands, of adjacent islands, and total area; with total legal population on December 31, 1908:

	Square miles			
Prin. Islands	Prin. isls.	Adj. isls.	Total	Total pop.
Honshiu	86,305	470	86,775	37,041,187
Shikoku	6,856	175	7,031	3,288,810
Kiushiu	13,768	1,820	15,588	7,167,148
Hokkaido	30,114	162	30,276	1,134,002
Chishima *	6,024	...	6,024	3,453
Sado	335	...	335	120,510
Oki	130	...	130	38,349
Awaji	218	1	219	210,646
Iki	51	...	51	40,522
Tsushima	262	4	266	39,264
Riukiu †	934	...	934	501,815
Ogasawara ‡....	27	...	27	3,595
Total	145,024	2,633	147,657	49,588,801

* 31 islands. † 55 islands. ‡ 20 islands.

The population of Japan, which for many years prior to the overthrow of the Shogunate was almost stationary, now appears to be increasing by nearly 700,000 per annum. The urban population is increasing much more rapidly than the rural; from 1903 to 1908 the average increase in cities of over 20,000 was 20.5 per cent., while the increase for the country as a whole was 6.1 per cent. Living birth rate in 1909, 34.20; death rate, 2.19. Marriages in 1909 per thousand inhabitants, 8.73; divorces, 1.18. In 1910, of the legal population, there were 1.726,522 living births; 1,073,732 deaths; 157,392 still-births; excess of births 652,890; marriages, 442,498. The number of foreigners at the end of 1910 was 15,154, of whom 8462 were Chinese, 2471 British, and 1665 American. On December 31, 1908, there were 97 cities and towns (*shi* and *cho*) having over 20,000 inhabitants. Population of the largest of these was as follows (the district in which the city is situated is given in parenthesis): Tokyo (Tokyo), 2,186,079; Osaka (Osaka), 1,226,647; Kyoto (Kyoto), 442,462; Yokohama (Kanagawa), 394,303; Nagoya (Aichi), 378,231; Kobe (Hiogo), 378,197; Nagasaki (Nagasaki), 176,480; Hiroschima (Hiroshima), 142.763; Kanazawa (Ishikawa), 110,994; Kure (Hiroshima), 100,679; Sendia (Miyagi), 97,994; Okayama (Okayama), 93.421; Saseho (Nagasaki), 93,051; Otaru (Hokkaido), 91,281; Hakodate (Hokkaido), 91,281; Fukuoka (Fukuoka), 82,106; Wakayama (Wakayama), 77,303; Yokosuka (Kanagawa), 70,964; Sapporo (Hokkaido), 70,084.

Education and Religion. There is a thorough educational system, and primary instruction is compulsory. The following statistics for public and private schools relate to March 31, 1911: Elementary schools, 25,947, with 152,230 teachers (of whom, 111,201 men) and 6,868,142 pupils (of whom, 3,542,965 boys; middle schools (for boys), 309, with 5857 teachers and 121,612 students; normal schools, 80, with 1479 teachers (of whom, 1287 men) and 25,391 students (of whom, 18,053 male); special and technical schools, 6647, with 8091 teachers (of whom, 7166 men) and 349,858 students (of whom, 298,595 male); superior schools for girls, 192, with 1647 teachers (of whom, 1243 men) and 90,960 students; various schools, 3068, with 9325 teachers (of whom, 5865 men) and 203,114 students (of whom, 116,639 male). The foregoing figures disclose a large proportion of male teachers, remarkable when compared with the proportion of male teachers in the feminized American system. On March 31, 1911, the Imperial University of Tokyo had 363 teachers and 5098 students; the Imperial University of Kyoto 191 and 1375; the Imperial Northeast University 86 and 793. There are various other institutions for higher and professional education. Expenditure on public educational institutions in the year 1910-11, 76,636,443 yen, of which 56,258,359 on primary schools.

The principal religious forms are Shintoism and Buddhism. On December 31, 1910, Shintoism had 13 administrative heads of sects, 74,559 preaching priests, 14,527 monks, 171 state temples and temples of superior rank, 51,113 district temples and temples of inferior rank, and 85,850 other (non-distinguished) temples. Buddhism had 56 administrative heads of sects, 51,830 high priests, 891 high priestesses, 73,047 preaching priests, 50,401 monks, 71,819 regular temples and 36,743 other temples. The Buddhist priesthood continues to show a small increase in number, and the Shintoist a small decline. The Christian priesthood, on December 31, 1910, consisted of 2046 ministers (1342 Japanese, 704 foreign), against 1633 in 1905; churches and chapels numbered 1245, against 1158 in 1905. In 1910 Roman Catholic churches numbered 180, Orthodox 129, Presbyterian 216, Congregationalist 126, Episcopal of Japan 199, Baptist 66, Methodist 166.

Agriculture. On January 1, 1911, the taxed land owned by private persons and local corporations amounted to 14,538,528 cho, of which 5,253,363 cho were under cultivation, 7,577,470 under forest, and 1,301,044 open field. (One cho=2.4507204 acres, or very nearly one hectare.) The areas of the principal crops under cultivation in 1911, with production, were as follows: Rice, 2,973,073 cho, 51,694,883 koku (one koku=4.9629141 bushels); wheat, 499,205 cho, 5,009,840 koku; barley, 598,566 cho, 9,385,818 koku; rye, 667,234 cho, 7,505,811 koku. The following are reported for 1910: Peas, 478,138 cho, 3,396,716 koku; adsuki (*Phaseolus radiatus*), 141,075 cho, 965,796; millet, 189,474 cho, 2,092,699; hie (a variety of millet), 58,337 cho, 775,315 koku; kimi (proso), 33,613 cho, 422,860 koku; buckwheat, 156,592 cho, 1,311,575 koku; colza, 138,446 cho, 1,048,051 koku; potatoes, 68,484 cho, 179,397,660 kwan (one kwan=3.2673297 pounds); sweet potatoes, 293,207 cho, 832,877,987 kwan; cotton, 3340 cho, 721,281 kwan; hemp, 12,317 cho, 2,430,210 kwan; tobacco, 29,725 cho, 11,344,307 kwan; indigo plant, 9223 cho, 5,232,850 kwan. In 1911 the production of tea was 6,178,914 kwan; bancha, 2,501,588 kwan; total, 8,680,502 kwan, against 8,342,446 in 1910 and 7,161,901 in 1901. In the year 1910-11, 20,062 cho were under sugar cane, yielding 219,870,982 kwan; sugar production amounted to 109,547,141 kin (one kin=1.3227727 pounds), against 98,024,518 kin in 1909-10.

In 1912 the area under rice was 2,978,277 hectares, production 71,573 metric quintals; wheat, 492,232 ha., 6,992,325 qs.; barley, 1,267,602 ha., 21,679,699 qs.; oats, 46,552 ha., 798,219 qs.; corn, 55,967 ha., 974,726 qs.; flax, 4848 ha., 26,519 qs.; tobacco, 29,135 ha., 433,602 qs.; cotton, 2400 ha., 6300 qs.

Livestock December 31, 1911 and 1912, respectively: Cattle, 1,405,026 and 1,399,498; horses, 1,576,146 and 1,518,743; swine, 298,709 and 308,970; sheep, 3736 and 3308; goats, 100,081 and 101,475. In 1908 about 60 per cent. of the inhabitants were dependent on agriculture.

Mining. The more important mineral products have been as follows:

	1900	1909	1910
Gold (ounces)......	38,304	126,485	140,436
Silver "	1,890,686	4,114,740	4,553,104
Copper (kwan *)...	6,484,578	12,224,343	13,153,025
Iron " ...	6,624,447	14,450,984	17,924,537
Pyrites " ...	4,310,981	5,735,683	21,246,926
Lead " ...	500,813	914,336	1,041,924
Mang. ore " ...	4,221,524	2,359,280	3,012,997
Zinc ore " ...	....	5,119,288	5,852,003
Sulphur " ...	3,850,271	9,839,876	11,692,586
Coal (tons).........	7,370,667	14,908,008	15,532,116
Petroleum (koku †).	767,508	1,657,036	1,608,016

* One kwan=8.2673297 pounds. † One koku=39.703313 gallons (1.8039068 hectoliters).

The production of salt in 1910-11 was 946,192,025 kin, against 995,058,080 in 1909-10 and 1,038,048,628 in 1908-09.

Fisheries. The value of the take in 1910 was as follows: Fresh fish and marine plants, 78,286,386 yen; dried fish, 20,563,434; salted, 2,221,525; fish oil, 482,052; manure, 6,165,367; other products, 9,073,789; total, 116,792,553 yen, as compared with 104,201,855 yen in 1909 and 79,334,893 in 1900.

Manufactures. The development of manufacturing, after western methods, has been especially notable in the textile and the iron and steel industries. There is a large government foundry at Wakamatsu (a town in Fukuoka district, with about 28,000 inhabitants in 1908), and at Nagasaki are important shipbuilding works. At the end of 1910 33,219 men and 752,219 women were employed in the textile industry. At the end of 1910, cotton-spinning mills numberd 88, with a capital of 59,315,626 yen, 91,519 employes, 1,896,601 spindles, and a yarn output for the year of 56,396,939 kwan; against 50,034,490 kwan in 1909. The value of tissues produced in 1910 was as follows: Silk, 108,610,043 yen; silk and cotton mixed, 24,829,652; cotton, 119,251,259; hemp and linen, 3,642,020; other, 3,611,512; total, 259,944,486 yen, against 241,107,166 in 1909 and 147,212,656 in 1905. In addition, in 1910, sash tissues were produced to a value of 8,789,061 yen. Other manufactures in 1910: Paper, 36,187,557 yen (of which, European paper 16,405,637); matches, 12,610,503; matting, etc., 10,090,352; porcelain and pottery, 13,269,995; lacquer ware, 7,865,780; colza oil, 8,193,886; other vegetables oils, 2,929,328; vegetable wax, 3,716,252.

Commerce. In 1912 the record for imports made in 1911 and the record for exports made in 1910 were exceeded. Imports of merchandise for home consumption, of total merchandise, of coin and bullion, and total imports have been as follows, in yen:

	Mdse.*	Total mdse.	C. & B.	Total imps.
1902...	269,103,211	271,731,259	....	....
1907...	490,963,404	494,467,346	8,246,503	502,893,849
1910...	460,896,672	464,238,808	17,671,797	481,905,605
1911...	509,368,665	513,805,705	6,168,268	519,973,973
1912...	....	618,992,277	11,544,351	630,536,628

* For home consumption.

Exports of merchandise, domestic and total, of coin and bullion, and total exports, in yen:

	Mdse.*	Total mdse.	C. & B.	Total exps.
1902...	255,675,017	258,303,065	....	....
1907...	428,503,942	432,412,873	18,759,285	451,172,158
1910...	455,091,860	458,428,996	25,175,091	483,604,087
1911...	442,996,848	447,433,888	24,898,286	471,832,174
1912...	....	526,981,842	28,325,153	555,306,995

* Japanese produce.

The leading imports of foreign produce in 1911 and 1912, respectively, were as follows, in thousands of yen: Cotton (ginned and in the seed), 146,783 and 200,824; iron and steel manufactures, 21,237 and 35,918; rice, 17,721 and 30,193; oil cake, 29,362 and 27,646; iron and steel, 13,550 and 23,543; machinery, 20,958 and 21,357; wool, 11,263 and 16,334; sugar, 9157 and 16,021; kerosene, 13,065 and 12,433; ammonium sulphate, 10,588 and 12,164; woolen yarn, 4783 and 8329; soy beans, 10,306 and 8271; cotton goods, 12,212 and 7518; phosphorite, 6306 and 7458; woolen goods, 11,619 and 5904; pulp for paper-making, 2757 and 4380; steamships, 3645 and 3949; wheat, 3729 and 4410; rubber and gutta percha and their manufactures, 4044 and 4104; hemp, jute, and manila hemp, 2983 and 6225.

Principal domestic exports in 1911 and 1912, respectively, in thousands of yen: Raw silk, 128,875 and 150,321; cotton yarn, 40,213 and 53,681; cotton goods, 25,768 and 43,907; silk goods, 34,758 and 31,834; copper ingots and slabs, 20,003 and 24,921; coal, 17,990 and 20,285; straw manufactures, 10,207 and 13,924; tea, 14,379 and 13,464; matches, 10,073 and 12,044; silk waste, 7786 and 10,543; sugar, 6789 and 8477; porcelain and pottery, 5378 and 5452; oils and waxes, 4368 and 6034; paper and manufactures, 3977 and 4748; sulphur, 5140 and 3410; dried fish, 2576 and 3808; camphor, 3143 and 2827; rice, 3941 and 4368.

Imports and exports of merchandise by countries, in thousands of yen:

	Imports		Exports	
	1911	1912	1911	1912
United Kingdom	111,157	116,147	28,824	29,792
France	5,518	5,421	48,575	43,871
Germany	56,474	61,076	11,682	18,488
Rest of Europe	20,425	20,665	26,200	27,162
China	62,000	54,807	88,153	114,824
Kwantung	20,544	25,707	23,063	27,515
Hongkong	702	882	24,522	28,713
Fr. Indo-China	9,924	10,644	470	340
British India	99,696	134,742	20,316	23,648
Dutch E. Indies	15,459	19,068	3,724	4,343
Rest of Asia	8,985	14,193	16,696	19,805
United States	81,251	127,016	142,726	168,709
British N. Amer.	334	664	4,006	4,808
Other	21,357	27,965	17,685	20,425
Total	513,806	618,992	447,434	526,982

Shipping. In 1911 there entered at the ports, in the foreign trade, 9000 vessels, of 20,053,569 tons; in 1912 9386 vessels, of 21,700,268 tons. Of the latter, Japanese vessels numbered 5780, of 10,276,438 tons; British 2063, of 6,632,254 tons; German, 430, of 1,548,845 tons; American, 183, of 1,340,061 tons; other, 930, of 1,902,667 tons. Merchant marine January 1, 1913: Vessels of European construction, 3042 steamers, of 1,442,566 tons, and 10,269 sail, of 495,322 tons; vessels of Japanese construction, 21,309 sail, of 282,200 tons.

Communications. On March 31, 1911, the reported length of state railway in operation in Japan proper was 4869.56 miles; under construction, 652.45 miles. Private railway in operation on the same date, 511.21 miles; under construction 183.06 miles. Total in operation, 5380.77 miles; under construction, 835.51 miles. On March 31, 1910, there were in operation in Taiwan 271.24 miles of railway; in Karafuto, 25.24 miles; in Chosen, 640.71 miles; total 937.19 miles; under construction in Chosen 156.39 miles. The Japanese railways in South Manchuria at the end of March, 1911, aggregated 707.02 miles in operation and 3.06 under construction.

Telegraphs, as reported for 1912: 4657 offices, with 39,256 kilometers of line and 174,210 of wire; 31 wireless stations and 20 on board ship. Post offices, 7790.

Finance. The monetary system is on a gold basis; the monetary unit is the yen, par value 49.846 cents. Revenue increased from 260,220,758 yen in the fiscal year 1904 to 857,083,818 in the fiscal year 1908 and 794,037,200 in 1909—the latest year for which the definitive account is available; expenditure was 249,596,131 yen in 1904, 602,400,959 in 1908 and 636,361,093 in 1909. The transitory account shows for the fiscal year 1911 revenue of 672,820,903 yen, and expenditure of 569,154,027. The budget balanced for the fiscal year 1912 at 568,903,916 yen, and for the fiscal year 1913 at 575,976,995 yen. For the latter year, the ordinary estimated revenue was 502,597,196 yen, and the ordinary estimated expenditure 412,073,863 yen. For the fiscal year 1914 the budget balanced at 586,807,598 yen, the ordinary estimated revenue and expenditure being 529,755,649 and 422,018,355 yen, respectively. Estimated ordinary revenue for the fiscal year 1914 included: Excise, 130,156,745 yen; land tax, 75,335,046; monopolies, 63,850,547; posts and telegraphs, 58,992,678; customs, 55,906,687; income tax, 35,471,676; stamps, 29,071,227; patents, 25,059,190; forests, 10,762,740. Estimated disbursements: Finance, 188,910,285 yen ordinary and 42,576,551 yen extraordinary (including 154,635,552 yen for the public debt); war, 78,155,403 and 19,780,673; navy, 42,236,215 and 54,845,591; communications, 61,677,852 and 16,440,730; interior, 12,490,801 and 19,770,353; justice, 12,393,799 and 648,137; agriculture and commerce, 7,708,243 and 9,375,189; public instruction, 9,547,453 and 1,058,843; foreign affairs, 4,298,305 and 293,165; civil list, 4,500,000; total, 586,807,598.

On March 31, 1912, the internal debt was 1,304,730,716 yen; foreign debt, 1,437,449,203; total public debt, 2,742,179,919 yen, as compared with 2,780,381,215 in 1911, 2,454,471,415 in 1907, and 559,164,258 in 1903.

Army. In connection with the colonial possessions of Japan and policies involved in Manchuria, the need of colonial garrisons was also a question under discussion, and the position of Japan was likened to that of Italy. These garrisons must be organized on a national army basis, as often their service is serious and necessary. The military organization of Japan includes an active army available for foreign service, a national army for home defense primarily, but available, as was shown in the case of the war with Russia, for foreign service, and a militia. Service is compulsory between the ages of 17 and 40, but the ordinary age of enlistment is 20, the conscript being liable for two years' service in the infantry, and three years in other arms in the active army, or *Geneki*, with the colors. Then seven and one-third years to complete the period in the first reserve, or *Yobi*. This is formed by ten years' enrollment in the second reserve, or *Kobi*, and the remaining period of life is passed in the national army, or *Kokumin*. The peace strength of Japan is about 280,000, and the war strength is estimated at about 1,400,000.

The strength of the Japanese army in 1911 was 13,711 officers and those ranking as officers;

2336 ranking non-commissioned officers and ensigns; and 212,521 petty officers and men. The army was divided into 39 brigades of infantry formed of 80 regiments or 248 battalions and 4 brigades of cavalry of 27 regiments with 89 squadrons. There were 3 brigades of 25 regiments of 50 three-battery battalions of field artillery, 2 batteries of horse artillery, and 3 battalions of 11 batteries of mountain artillery. The heavy artillery included 2 brigades with 6 regiments and 24 battalions of 64 batteries, while there was 1 brigade of engineers formed of 24 battalions of 75 companies and 19 battalions of train. In 1911 450,000 young men were examined by the recruiting officers, and of these 256,864 were considered good for service, 103,784 were called to the colors, and 153,080 were included in the *Hoju*, or recruiting reserve.

The active army and the guard are organized in 19 divisions. In 1913 new guns were being introduced for the horse and mountain artillery. The emperor is supreme head of the Japanese army, but responsible to him are the general staff and war ministry, while independent of both is the inspectorate of military training. The war council, consisting of the minister of war, the naval minister, the chiefs of the general staff, and the naval staff, is maintained. See also MILITARY PROGRESS.

NAVY. Number and displacement of warships of 1500 or more tons, and of torpedo craft of 50 or more tons, built and building, December 1, 1913: Dreadnoughts (battleships having a main battery of all big guns, that is, 11 or more inches in calibre): built, 2, of 41,600 tons; building, 4, of 120,000 tons. Predreadnoughts (battleships of about 10,000 or more tons, whose main batteries are of more than one calibre): built, 13, of 191,380 tons; building, none. Coast-defense vessels: Built, 2, of 9086 tons; building, none. Battle cruisers (armored cruisers having guns of largest calibre in main battery and capable of taking their place in line of battle with the battleships): Built, one, of 27,500 tons; building, 3, of 82,500 tons. Armored cruisers: built, 13, of 138,483 tons; building, none. Cruisers (unarmored warships of 1500 or more tons): built, 14, of 60,995 tons; building, none. Torpedo-boat destroyers: built, 54, of 22,356 tons; building, 2, of 1200 tons. Torpedo boats: built, 28, of 3127 tons; building, none. Submarines: built, 13, of 2672 tons; building, 2, of 1200 tons. Total tonnage: built, 497,199; building, 204,900. Excluded from the foregoing: Ships over 20 years old from date of launch unless reconstructed and rearmed within five years; torpedo craft over 15 years old; transports, colliers, repair ships, torpedo depot ships, and other auxiliaries; vessels not actually begun or ordered, although authorized. Japan is fifth among the nations in amount of warship tonnage built and also in the aggregate of tonnage built and building.

Officers and men in 1913, 49,435, including 3 admirals of the fleet, 8 admirals, 18 vice-admirals, 38 rear-admirals, 259 captains and commanders, and 1915 other officers.

In the above list of warships, the *Satsuma* and *Aki*, completed in 1910, are classified as predreadnoughts, though in some classifications they are placed with the dreadnoughts. The battle cruiser *Kongo*, launched at Barrow, May 18, 1912, proceeded to trial in April, 1913, exceeding her designed speed of 27 knots. Her principal characteristics are: Displacement, 27,500 tons; length between perpendiculars, 502 feet; beam, 73 feet; draft, 25 feet; battery, eight 14-inch guns and sixteen 6-inch guns; torpedo tubes, 8; maximum thickness of armor belt, 11 inches. The dreadnought *Fuso*, building at Kure, and the battle cruiser *Hiyei*, building at Yokusuka, are due for completion in 1914. (See also BATTLESHIPS and NAVAL PROGRESS.)

GOVERNMENT. Under the constitution of 1889, the Parliament or imperial diet, consists of the House of Peers (366 members) and the House of Representatives (379). Representatives are elected by male subjects having reached the age of twenty-five and possessing certain property qualifications. The executive authority is vested in the emperor, who acts through a cabinet of ministers appointed by and responsible to himself. The emperor Mutsuhito died at Tokyo July 30, 1912, and was succeeded by his son Yoshihito. The new emperor was born at Tokyo August 31, 1879; he married May 10, 1900, Sadako, fourth daughter of the late Prince Kujo Michitaka. Heir-apparent, Hirohito, born at Tokyo April 29, 1901.

HISTORY

THE FALL OF KATSURA. The small and aristocratic circle of elder statesmen or '*Genro* which put Prince Katsura in the office of premier in December, 1912, against the will of a parliamentary majority, found itself unable to keep him in office when the country at large protested. The Saionji cabinet, supported by a *Seiyukai* (Constitutionalist) majority, had been overturned by the military party and by the *Genro* because it refused to increase the Korean garrison. Prince Katsura, who as keeper of the privy seal and chief counselor to the emperor enjoyed the special confidence of the monarch, attempted to prepare a programme which would not antagonize the *Seiyukai*, and to divert attention from domestic to foreign affairs. The Diet, which had been prorogued since December, met on February 5 in no amiable mood. The Constituionalists were determined to have a ministry of their own party; they had agitated the question outside of the Diet in January; they were now ready to declare their lack of confidence in Prince Katsura, now the ministry was in no wise bound to obey the will of the Diet; for the Japanese system, modeled after the German constitution, makes the ministers responsible only to the emperor. An intractable Diet might be inconvenient, however, and Prince Katsura wisely proclaimed a new prorogation of five days. Other methods failing, the emperor ordered Marquis Sainji to induce his Constitutionalist colleagues to withdraw their resolution of no confidence. Even their respect for the divine antecedents of their ruler would not avail against the determination of the Constitutionalists. When the Diet met on February 10 they were still hostile to the government. An excited crowd assembled around the government buildings at Tokyo to hiss the ministry and cheer the opposition. Fifteen were wounded by the police. But when it became known that the Diet was again prorogued, popular indignation knew no bounds. The mob stoned the police, then rushed off to burn the offices of the ministerial organs, *Miyako*

Shimbun and *Kokumin Shimbun.* The residences of Prince Katsura and other ministers would have been destroyed, had not the police appeared, reinforced by soldiers, to quell the riot. The rioters were worsted and dispersed after several of their number had been killed and scores wounded..

THE YAMAMOTO MINISTRY. The popular agitation succeeded in its object. Prince Katsura resigned. Count Yamamoto, a Constitutionalist and a popular naval officer—it was to his work as minister of marine that Japan owed much of her success in the Russo-Japanese War—secured the support of a coalition of the *Seiyukai* (Constitutional Unionists) and the *Kokumin-To* (Nationalists) for a cabinet constituted as follows: Admiral (Count) Yamamoto, premier; Baron Takahashi, finance; Viscount Kei Hara, interior; Matsuda Masahisi, justice; M. Okuda, communications; Baron Motoda, education; Baron Makino, foreign affairs; Baron Kikoshi, war; and Baron Saito Minoru, marine. The coalition ministry adopted a policy in which adequate provision for national defense was not to interfere with the lightening of the tax burden as proposed by the Saionji government, and railway construction was to be promoted in accordance with the demands of the Constitutionalists. In the budget passed by the Diet on March 15 the government claimed to have effected a saving of $25,000,000. In June Count Yamamoto announced that almost 5000 useless officials would be discharged in the interest of economy. Economy in the army, however, was loudly denounced by the army party, and rumors of trouble were confirmed when General Kikoshi tendered his resignation on June 24. The new minister of war, General Kusunose, was reputed able and willing to carry the policy of economy into effect.

OTHER EVENTS. In November a fleet of 55 Japanese warships was reviewed at Yokosuka by Emperor Yoshihito. The case of the 106 Korean "conspirators" was appealed to a higher court, and all but six were acquitted. The case was discussed at length in the 1912 YEAR BOOK. A conspiracy was detected in Formosa in November; the leading conspirators, 13 in number, were publicly executed at Taihoku on December 31. Prince Keiki Tokugawa (q.v.), the last of the Shoguns, died on November 22. A less picturesque personality but of greater political importance was that of the ex-premier, Prince Katsura (q.v.), who died on October 10; his position as party leader was taken by Baron Takaaki Kato. A "Three Religions Conference" of Shintoists, Buddhists, and Christians was held in February at the suggestion of the vice-minister of home affairs, M. Tokunami. Late in December reports were received of a severe famine in the provinces of Aomori and Hokkaido.

For subjects not dealt with here, see especially CHINA, *Japanese Demands;* UNITED STATES, *Foreign Relations.*

JAVA. See DUTCH EAST INDIES.

JAYNE, HORACE. An American scientist and educator, died July 9, 1913. He was born in Philadelphia in 1859; graduated from the University of Pennsylvania in 1879; studied medicine, and in 1882 received the degree of M. D. In the same year and the one following, he carried on biological studies at the universities of Leipzig and Jena. In 1883-4 he studied at Johns Hopkins University, and at the same time was assistant in biology at the Wistar Institute of Anatomy. He became professor of vertebrate morphology in 1884, and professor of zoölogy and director of this institution in 1894, serving until 1905. From 1884 to 1889 he was secretary of the biological faculty at the University of Pennsylvania, and was dean of the collegiate faculty of that university from 1889 to 1894. He resigned this position to become a member of the trustees of the Drexel Institute. He was a prolific writer, and among his published works are: *Mammalian Anatomy; Revision of the Dermestidæ of North America; Abnormalities Observed in North American Coleoptera.* He was a member of many scientific and learned societies.

JEWISH FARMERS' COÖPERATIVE CREDIT UNIONS. See AGRICULTURAL CREDIT.

JEWS. See JUDAISM.

JOHNS HOPKINS UNIVERSITY. An institution for higher education at Baltimore, Md., founded in 1876. The students enrolled in the several departments in the autumn of 1913 were 1356. Of this number, 846 were full-time students in regular courses, and 168 were in afternoon courses for teachers and others. There were 347 in the summer courses, including 70 in the Medical School. The faculty numbered 224, of whom 207 were residents and 17 were lecturers. In the autumn of 1913 a department of engineering was begun with three professors. The amount of the productive funds of the university was about $6,000,000, and the income from all sources in 1912-13 was $382,688. The library contains about 175,000 volumes. The president is Ira Remsen, LL. D., Ph. D.

JOHNSON, CHARLES EDWARD. An English landscape painter, died February 12, 1913. Born in Stockport, England, in 1832, his art studies were carried on in the schools of the Royal Academy. In 1864 he took up his residence in Edinburgh, and continued to live there for many years. Among his best-known paintings are "Glencoe"; "Ben Nevis in Winter"; "The Wye and the Severn"; "Fingal's Cave"; "The Timber Wagon"; and "A Corner of Old England." He was a member of the Royal Institute of Water Colors, and the Society of Oil Paintings.

JOHNSON, HERRICK. An American clergyman, educator, and writer, died November 20, 1913. He was born in 1832; graduated from Hamilton College in 1857; and studied at the Auburn Theological Seminary, graduating in 1860. In the same year he was ordained to the Presbyterian Ministry and became pastor in Troy, N. Y. He afterwards served as pastor in Pittsburgh and Philadelphia. From 1874-80 he was professor of homiletics and pastor of theology at the Auburn Theological Seminary. He then served as pastor of the Avenue Church of Chicago from 1880-83. In the latter year he was appointed professor of homiletics at McCormick Theological Seminary. He filled this chair until 1905. In 1882 he was moderator of the Presbyterian General Assembly, and was president of the Presbyterian board of education and board of college aid. His published writings include *Christianity's Challenge* (1881); *Revivals from Place and Power* (1882); *Plain Talks About the Theatre* (1883); *Presbyterian Book of Form* (1889);

From Love to Praise (1903); *The Ideal Ministry* (1909).

JOHNSTON, Joseph Forny. An American public official and United States senator from Alabama, died August 8, 1913. He was born in North Carolina in 1843. He left school to join the Confederate army as a private in 1861 and served throughout the war. He was four times wounded, and rose to the rank of captain in the Confederate army. After the war he practiced law for 17 years, and then for 10 years engaged in banking. In 1896 he was elected governor of Alabama, and was reëlected in 1898. He was unanimously elected to the United States Senate by the legislature in 1907, receiving the Republican as well as the Democratic vote, to fill out the unexpired term of Senator E. W. Pettus (q.v.). (See Alabama.) In 1909 he was reëlected for the term ending 1915.

JOHNSON, Mortimer Lawrence. An American rear-admiral, retired, of the U. S. navy, died February 14, 1913. He was born at Nahant, Mass., in 1842, and graduated from the United States Naval Academy in 1862. He served throughout the Civil War; in 1864-5 was a member of the South Atlantic blockading squadron; and was in all engagements under Admirals DuPont and Dahlgren. He also participated in both attacks on Fort Fisher. In 1866 he was appointed lieutenant-commander. He served as commanding officer of many vessels. He has been commander of the navy yards at Portsmouth and Boston; president of the Naval War College; and commandant of the naval station at Port Royal. His last assignment was commandant of the navy yard at Boston, 1901-4. In the latter year he was retired with the rank of rear-admiral.

JOHORE. A native state at the southern end of the Malay Peninsula, bounded on the northwest by Malacca and on the north by the Negri Sembilan and Pahang. The foreign relations of the state have been under British control since 1885, and since 1910 a British adviser has been stationed at the court. The estimated area of the state is about 9000 square miles. Much of the interior is little known to white men. The population in 1911 is reported at 180,412, of whom about one-half are Malays and about one-third Chinese. The population of the capital, Johore Bharu, situated on the strait opposite Singapore, was returned at 9359. The only other town of importance is Bundar Maharani, in Muar. The principal products are gambier, pepper, sago, and tapioca. In recent years rubber has been extensively planted. There is some tin mining, and iron occurs in abundance, but on account of lack of coal it is not worked. A state railway, opened in 1909, extends from Johore Bharu 120½ miles northwest to Kuala Gemas, on the Negri Sembilan border, where it connects with the Federated Malay States railways. In 1912 the revenue was 4,348,641 Straits Settlements dollars; expenditure, 3,231,406; debt, 10,463,578, Sultan in 1913 (and since 1895), Ibrahim; British adviser (since 1910), Douglas Graham Campbell, C. M. G.

JONES, Charles Henry. An American jurist and soldier, died January 26, 1913. He was born in Talbottom, Ga., in 1848, and at the age of fifteen he entered the Confederate army and served under General Johnston, to be transferred to the naval department. He removed to New York, where he lived from 1865-81, and edited the *Eclectic Magazine,* and *Appleton's Journal.* In 1881 he established the *Florida Daily Times* of Jacksonville, Fla., which was consolidated in 1882 as the *Times-Union.* In 1885 he removed to St. Louis, and was editor of the *Missouri Republican,* later the *St. Louis Republican,* and managing editor of this paper until 1893, when he became editor of the New York *World,* remaining in this position for two years. From 1895-97 he edited the *St. Louis Post-Despatch.* He was a member of the World's Colombian Commission; originated the idea of the Louisiana Purchase Exposition, of 1904; and wrote the Chicago platform of 1896 and the Kansas City platform of 1900. In 1885 he was president of the National Editorial Association, and was one of the leaders in organizing the American Newspaper Publishers' Association. His last years were spent in Paris.

JONES, Edward Franc. An American soldier, public official, and manufacturer, died August 14, 1913. He was born in Utica, N. Y., in 1820. At the age of sixteen he removed to Boston and began work in a wholesale dry goods store. He became colonel of the famous 6th Massachusetts Regiment, which under his command was the first regiment in the country to respond to the call of President Lincoln for 75,000 men. This regiment, which passed through New York and Pennsylvania in advance of the New York and Pennsylvania troops, was attacked by a mob in Baltimore. This historical event was the one conflict between northern troops, and southern sympathizers. Several men were killed in this affair. It is generally conceded by historians that, had not this regiment arrived in Washington on the day it did arrive, the city would have been captured by the Confederates. Colonel Jones afterwards recruited the 26th Massachusetts regiment which was attached to General Butler's division, organized for the purpose of capturing New Orleans. At the close of the war, he was elected a member of the Massachusetts House of Representatives, and in the same year he removed to Binghamton, N. Y., where he established the Jones scale works, his scales becoming famous throughout the country partly by reason of the phrase he used in his widespread advertising—"Jones of Binghamton—He pays the freight." In 1885 he was elected lieutenant-governor of New York on the Democratic ticket, and in 1888 was reëlected. He was a member of many patriotic and historical societies. During the last years of his life he was totally blind. He was brevetted brigadier-general of volunteers in 1865.

JOURNALISM, School of. See Universities and Colleges.

JUDAISM. There are no recent authoritative figures of the number of Jews in the world or in the United States. Estimates comparatively accurate, however, have been made. One of these by the *American Jewish Year Book,* gives the total number of Jews in the world in 1910 at 12,867,856. Of these, there were in that year in the United States, 2,044,762; in Austria-Hungary, 2,099,228; in Russia, 6,243,-712. These were the only countries in which the Jews numbered over 1,000,000. There were in the British Empire, 433,229; in Germany, 607,862; and in Turkey, 463,686, of whom 78,000 were in Palestine.

Ritual Murder Case. The most important event in the history of Judaism during the year was the trial for ritual murder of Mendel Beiliss. The trial and the circumstances which led up to it, attracted world-wide attention.

On March 25, 1911, a boy thirteen years of age, named Andrew Yushchinski, living in the city of Kieff, suddenly disappeared on his way to school. Over a week later his body was found much disfigured in a cave in the suburbs of the city. With it were his school books and all the articles which he had with him when he started from home. The body when found was partly undressed, was almost bloodless, and had been pierced or stabbed in more than forty places with some sharp-pointed instrument. There were no traces of blood in the vicinity, and it was evident that the boy had been killed elsewhere and his body brought to the cave some hours before life had been extinct. There had been no attempt to prevent identification of the body. The nature and number of the wounds with the other circumstances, suggested a crime of unusual character. The reactionaries and the members of the "Black Hundreds," the bitter enemies and oppressors of the Jews, at once brought the accusation of ritual murder against the Jews, and proclamations were issued in the anti-semitic press and in the Duma to the effect that the Jews had killed the boy as they had previously killed many other Russian children, in order to get Christian blood to be used in their ceremonies. Mendel Beiliss, a Jew, and a workman in a brickyard near the spot where the body was found, was accused of the murder, and the authorities at once began to seek evidence against him.

The accusation of ritual murder led to a bitter controversy which was carried on for two years or more in Russia by various organizations opposed to Jews on the one side, and the Jews, the liberal press, the opposition parties in the Duma, and the enlightened people of the empire in general, on the other. The controversy soon attracted the attention of the whole civilized world, and protests against the "blood accusation" as a revival of a medieval myth, were made by 800 Jewish rabbis and over 1000 representatives, citizens, and leaders of thought in Russia; by the universities of Oxford, Cambridge, Liverpool, London, Glasgow, and Dublin; by the International Congress of Orientalists, and the International Medical Congress; by associations of psychologists and psychiatrists; and by many thousands of the world's most distinguished scholars and statesmen in Germany, France, England, and the United States.

Beiliss in the meantime was thrown into prison, and the effort to obtain evidence against him was carried on for two years. It is asserted that but for the personal initiative and insistence of the czar, the prosecution would have abandoned the ritual murder theory and would have set Beiliss at liberty. The czar, the court, and the ministry of justices, however, it is said, were determined to make out a case against the Jews. Beiliss was kept in prison in confinement, and was denied even the privilege of consulting his lawyer. It was said that a former chief of the secret police at Kieff, who conducted independent investigation and came near to discovering the real perpetrators of the crime and laying bare the motives of the conspirators, was suspended from office, tried on some pretended charges, and imprisoned.

Beiliss was out on trial on October 8, before four judges and a jury. At the beginning of the trial, his lawyers were for the first time permitted to confer privately with him. Many witnesses were examined, but no testimony given connected Beiliss even indirectly with the murder. On November 11 Beiliss was acquitted of the murder by the jury's verdict, but the reactionary elements partly accomplished their purpose by so stating the questions which the jury had to consider, that it was made to appear that the murder was committed at the brick works where Beiliss was employed, and that while he might not have been implicated, there was such a thing as the practice of ritual murder. This verdict, while it freed Beiliss, further inflamed anti-semitic feeling, and it was followed by many outbreaks against the Jews.

Poland. The condition of the Jews in Russia was not improved in 1913. In the Polish provinces of the empire, where the greater part of the Jews live, and where heretofore they have been as a rule treated well, the leaders of the reactionaries have succeeded in creating an atmosphere of racial and religious hatred. The anti-semitic journals carried on a commission, which was largely successful to bring about a boycott against the Jews. All business and social intercourse throughout Poland between Poles and Jews practically ceased by the end of the year, and it was reported that the animosity had reached such a stage that firemen in Warsaw refused to rescue a Jewish family from a burning house.

Rumania. The conditions in Rumania, which for many years have borne severely upon the Jews as a result of restrictive measures against them, were not improved in 1913. The American Rumanian Jewish emancipation committee was organized to ameliorate conditions. Appeals were made to European powers, and a special message was sent to the German emperor. Many other Jewish organizations of the United States also carried on campaigns to assist the Rumanian Jews. The United States government suggested the inclusion in the Balkan peace treaty of a clause assuring the religious and civil liberty of the Jews. This suggestion was rejected. At a meeting of the American Rumanian Jewish emancipation committee, held in October, resolutions were adopted denouncing the treatment of the Jews in Rumania, and a letter was directed to be forwarded to King Charles. Speeches were made by Bainbridge Colby, Senator Clapp, Senator Poindexter, and others. Resolutions were introduced into the House of Representatives, protesting against the treatment of Jews in Rumania.

England. In England, Dr. Joseph H. Hertz, formerly in New York, was elected chief rabbi on February 6.

Zionism. The Zionist conference was held in Vienna in September. Addresses were made by Professor Warburg, who reported on the number of Zionists and their funds. He declared the attitude of Turkey toward the Zionists to be favorable. A proposal was made for the establishment of a Jewish university in Palestine. One hundred thousand dollars was subscribed for this purpose. The Turkish ambassador in Vienna gave assurance of the sympathy of the Turkish government with the plan for the colonization of Palestine.

JUTE SUBSTITUTES. See CHEMISTRY, INDUSTRIAL.

JUVENILE COURT. Since 1898, when the first special court for children was established at Chicago, the movement for a separation of court proceedings against children from those against adults has wrought great transformations in judicial methods in all civilized nations. Private hearings by a high-minded judge, with an efficient corps of probation officers, make possible an individualization of treatment and an application of intelligence and sympathy not possible under previous methods. Below are noted the more important developments of the year.

CHICAGO. The juvenile court of Chicago has been the model for the world. It made the innovation early in the year of providing a woman judge, Mary M. Bartelme, for delinquent girls. She had served for eighteen years as public guardian of Cook County and was chosen by the judges of the Circuit Court to serve as assistant to Judge Pinckney of the Juvenile Court.

DENVER. The reëlection of Judge Ben B. Lindsey of the Denver Juvenile Court was marked by a most acrimonious campaign. The interests hostile to Judge Lindsey sought to discredit him by charging that in sex cases involving girls he had allowed the men to go free or had punished them very lightly. These charges were countered by a full and accurate statement of all the facts, whereby it was shown that the Juvenile Court had been nearly three times as successful in securing convictions (12.8 per cent. as against 44.6 per cent. of cases filed) as had the city Criminal Court. Not only so, but Judge Lindsey had succeeded in winning the confidence of all parties and had thus been able to repair damage done instead of driving the young persons in error farther toward a criminal record. The controversy clearly established the great value of the probation system and especially of private hearings by a wise and sympathetic judge.

NEW YORK. In April a law was passed giving the County Court of Ontario County exclusive jurisdiction throughout the county over cases of neglected and delinquent children, and concurrent jurisdiction in certain offenses against children. A competent probation officer was chosen by civil service examinations. This was the second county children's court in New York, that of Monroe County having been created in 1910.

NEW YORK CITY. On January 1 several changes were instituted in the four children's courts of Greater New York. The judges, who previously had been shifted frequently, were assigned to a court for continuous service there; and one judge rotated about among the four courts unifying and standardizing their activities. The number of probation officers paid by the city was increased from twenty to forty. During 1913 there was under construction a $250,000 four-story children's court building for the borough of Manhattan. At the laying of the corner stone on August 11, many distinguished citizens were present. Borough President McAneny in an address laid great emphasis on the growing conviction that thorough-going curative treatment of juvenile offenders should replace primitive measures. Justice Russell also made an address setting forth the ideals of the new theory of child correction.

MINNEAPOLIS. A department of research was instituted in connection with the Hennepin County Juvenile Court. It aimed to learn who was responsible for each child's delinquency; to what extent parents were to blame; whether both parents were alive and living together; the family income; the parents' sense of responsibility; the social causes; the relation of the school to the delinquent; the success or failure of the probation system. The investigations are under the direction of an expert physician and an experienced psychologist and educator. A nurse also is retained, and all three work in conjunction with the presiding judge. Every delinquent is given a thorough physical examination and in cases of need adenoids are removed, eyeglasses are supplied, ears and teeth are treated, and even circumcision is performed. Detailed individual records are kept, including data relating to parents, home life, living conditions, schooling, and other social influences. The nurse cares for children who have been operated on and by following them into their homes is able to set many influences at work to raise the level of home life.

EUROPE. At the second international congress of Juvenile Court judges and workers in Munich near the close of 1912 the recent progress in the treatment of juvenile delinquents was brought out. Nearly every European country has advanced toward a more intelligent handling of the problem of the youthful criminal, but a large majority of the delegates to the congress still advocated the use of punishment rather than reliance upon educational and reformatory methods. The ideas at the basis of the Juvenile Court, special judges, separate and private hearings, separation of adult and juvenile prisoners, and the suspended sentence and parole have been adopted to a greater or less extent and with varying success in Russia, Germany, France, and Italy. In Germany a special juvenile code has been drafted. Persons under eighteen years are considered juveniles. In each judicial district is established a juvenile court presided over by a judge and two laymen chosen from educators. The public attorney decides in each case whether education or punishment shall be the mode of treatment. Juveniles and adults must be separated before trial and in prisons. The court must take account of the physical and mental development of youths over fourteen. A corps of paid and volunteer probation officers is provided.

KAISER-WILHELMS-LAND. That part of German New Guinea (q.v.) which is in New Guinea Island.

KAMERUN. A German protectorate between Nigeria and French Equatorial Africa, occupying, together with the territory ceded by France under the terms of the Franco-German convention of November 4, 1911, an area estimated at 790,000 square kilometers (305,000 square miles), carrying a native population of some 3,500,000. White inhabitants January 1, 1912, 1537, of whom 1359 were German. The acquisition of the ceded territory gives to Kamerun egress on the Ubangi and Congo Rivers and a new outlet on the Atlantic south of the Spanish colony of Rio Muni. Imports for 1911 were valued at 29,317,000 marks (Germany, 23,047,000); exports, 21,251,000 (Germany, 18,471,000). Principal articles of export in 1911 were rubber, 11,030,000 marks; palm laurels, 4,168,000; cacao, 3,307,000; palm oil, 1,424,000; ivory, 581. Totals for 1910: 25,581,000 marks imports and 19,924,000 marks exports. Vessels entered (1911), 536, of 1,551,058 tons. Railways in operation at end of 1912, 241 kilometers; under construction, 279 kms. The 1913-14 budget balanced at 15,344,624 marks (1912-13, 17,634,680), of which 2,803,696 marks was imperial subvention and 2,000,000 from loans. Herr Ebermaier was governor in 1913, with headquarters at Buëa.

KANSAS. Population. The population of the State in 1910 was 1,690,949. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 1,762,573.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

Corn	1913	7,320,000	23,424,000	$18,271,000
	1912	7,575,000	174,225,000	69,690,000
Wheat	1913	6,710,000	86,983,000	68,717,000
	1912	5,956,000	92,290,000	68,295,000
Oats	1913	1,760,000	34,320,000	15,444,000
	1912	1,720,000	55,040,000	19,264,000
Rye	1913	45,000	630,000	472,000
	1912	30,000	477,000	324,000
Potatoes.....	1913	73,000	2,920,000	2,657,000
	1912	70,000	5,740,000	4,190,000
Hay	1913	1,500,000	[a]1,350,000	16,875,000
	1912	1,627,000	2,440,000	18,544,000

[a] Tons.

Mineral Production. The total value of the mineral products of the State in 1912 was $26,554,967, compared with $25,237,043 in 1911.

In 1912 the total production of coal in the State was 6,986,182 short tons, valued at $11,324,130. This was an increase over the production of 1911 to 6,986,182 tons, valued at $11,324,130. The increased production of Kansas, as in other southwestern States, may be attributed to the diminished supply of fuel oil, natural gas from the mid-continent field. In 1912 the total of 11,346 men were employed in coal mines. These worked an average of 202 days, compared with 11,357 men who worked for an average of 390 days in 1911. There were 28 fatal accidents in the coal mines of the State in 1912, compared with 42 in 1911. Of the men killed in 1912 26 met death underground, and of these 11 were killed by falls of roof or coal.

The Kansas oil fields form a part of the Kansas-Oklahoma fields. The total output in Kansas in 1912 was 1,593,796 barrels, an increase over the production of 1911, which was 1,278,819 barrels. The total number of completed wells in the State in 1912 was 949.

The total value of the clay products in 1912 was $2,036,500, an increase of $323,762 over 1911. Vitrified brick is the principal clay product of the State.

Education. The total school population of the State in 1913 was 510,273. The total enrollment in public schools was 395,064, and the average daily attendance was 298,128. The male teachers employed numbered 2639, and the female 11,364. The average salary of teachers both male and female, was for teachers in rural schools, $52.11 monthly; in graded schools, $67.25 monthly. The State superintendent of education at the session of the State Teachers' Association on November 7, 1913, made the following recommendations: A larger unit of school organization and government; the standardism of rural schools, and the accrediting of high schools under the authority of the State board of education; free tuition in high schools for all boys and girls; a reorganized system of normal institutes; and the establishment of agricultural high schools. These resolutions were unanimously endorsed by the organization, and will be urged upon the legislature by its executive committee. The legislature of 1913 made practically no changes in the existing school laws.

Charities and Corrections. The charitable and correctional institutions under control of the State with their populations in 1913 are as follows: Topeka State Hospital, 1522; Osawatomie State Hospital, 1349; a State Hospital for Epileptics at Parsons, 473; State School for the Feeble Minded at Windfield, 480; State Orphans' Home at Atchinson, 200; State Penitentiary at Lansing, 890; Industrial Reformatory for Young Men at Hutchinson, 380; Boys' Industrial School at Topeka, 259; Girls' Industrial Schools at Beloit, 169; State Soldiers' Home at Port Dodge, 233; Mother Bickerdyke Home, Annex at Ellsworth, 87; a State hospital under construction at Larned, and a State tubercular sanitarium at Norton.

Finance. The total receipts for the fiscal year 1912 were $7,758,025, and the disbursements $7,891,099. There was a balance at the beginning of the year of $1,423,283, leaving a balance at the end of the year of $1,289,209. The chief receipts are from the general revenue fund and from the Topeka Fiscal Agency. The chief expenditures are for education, for the maintenance of State institutions, and for the expenditures of State government. The bonded indebtedness of the State amounts to about $370,000.

Transportation. The total railway mileage operated in the State on June 31, 1912, was 12,167. Railways having the longest mileage are the Atchison, Topeka, and Santa Fé, 3733; Missouri Pacific, 2840; Chicago, Rock Island, and Pacific, 1491; Union Pacific, 1533; Missouri, Kansas, and Texas, 684; St. Louis and San Francisco, 903.

Politics and Government. The legislature, Democratic in both branches, met in 1913 and passed a number of important measures noted in the section *Legislation* below. There was no election for State officers during the year, as the term of Governor Hodges and the other State officers does not expire until January 10, 1915. The next State election will be held on November 3, 1914. Governor Hodges was inaugurated on January 14. On January 28 the legislature elected William H. Thompson as United States senator. Senator Thompson was the choice of the people at the primary election held in November, 1912. The House of Representatives on February 2 rejected a provision for the recall of public officers. The Senate on February 4 voted against the initiative and referendum amendments to the constitution, but on February 7 passed a State initiative and referendum bill.

The expiration of the term of Senator Bristow on March 3, 1913, and the election of his successor in 1914, began to have political importance in December of 1913. Senator Bristow was elected in 1909 as a Progressive Republican, and he was one of the most aggressive leaders of the Progressive wing of the Republican party in the succeeding years. He supported Theodore Roosevelt in 1912. In December, 1913, he announced that he was a candidate for reëlection to the Senate on the Republican ticket. This was followed by an immediate announcement by Victor Murdock, a leader of the Progressive party in the House of Representatives, that he was a candidate for the senatorial nomination on the Progressive party ticket. William Allen White and other leading Progressives of the State announced at the same time that they would support the candidacy of Mr. Murdock.

LEGISLATURE. The legislature met in 1913 and passed many important measures. Acts were passed putting into effect the woman suffrage constitutional amendment adopted in the election of November, 1912. Measures were passed submitting to the people constitutional amendments providing for the recall of all public officers whether elected or appointed. The inheritance tax law was repealed. The State tuberculosis sanitarium was established. A measure was enacted restricting the granting of injunctions in labor disputes. An eight-hour law for workmen on public works was passed. A State department of public industries was created. A white slave law was enacted. A commission form of government was provided for certain cities. A measure providing for civil service of cities of the first-class was passed, and measures regulating primary elections in cities of the first and second class were enacted. A concurrent resolution was passed which requested Congress to pass an act providing a plan whereby an adequate part of the national funds should be used for loans to resident land-owners at a low rate of interest, in view of existing conditions, under which agriculturists must pay an excessive rate of interest on loans.

On the eve of the adjournment of the legislature, Governor Hodges sent a message containing a proposal so far unique in the history of American State government. In this message he asserted that the government by a two-chambered legislature was cumbersome and inefficient, and he recommended that it be superseded in Kansas by a State commission to be made up of eight, or at the most sixteen, members which should act as a board of directors for the State. The governor said: "In common with a large and growing number of thoughtful people, I am persuaded that the instrumentalities for legislation provided for in our State constitution have become antiquated and inefficient. Our system is fashioned after the English Parliament, with its two houses based upon the distinction between the nobility and the common people, each house representing the divers interests of these classes. No such reason exists in this State for a dual legislative system, and even in England, at the present time, the dual system has been practically abandoned and the upper house shorn of its importance; and I believe that we should now concern ourselves in devising a system for legislating that will give us more efficiency and quicker response to the demands of our economic and social conditions and to the will of the people." The governor said that he had been led to this conclusion as a member of the State Senate. He pointed out that under the existing system there is a congestion of business accumulating for each legislative session; that the legislature with its two large independent houses is a most inefficient organization for transacting business; and that the outcome is apt to be inaction on highly important measures and hasty and ill-considered action on hundreds of minor bills. He suggested that the State commission should be made up of one or two members from each congressional district; that the members be paid large enough salaries to enable them to devote all of their time to the work; and that they meet in frequent session and be elected for terms of four to six years, subject to the recall. He added: "A legislative assembly such as I have suggested could give ample time to the consideration of every measure, not only in relation to its subject matter, but to the drafting of it in plain, concise, and easily understandable language. It would be ready at any time to deal with new conditions, and to provide relief in emergency cases; and, with time to inform itself about conditions and to study the needs of the people and of our State institutions, there seems to me to be no question but what it would be vastly more efficient than our present system, as well as vastly more economical." The governor did not ask the legislature to act on his recommendation, but urged its members to encourage its discussion with a view to submitting a constitutional amendment on the subject in 1914.

STATE GOVERNMENT. Governor, George H. Hodges, Democrat; Lieut.-Governor, S. Ingalls; Secretary of State, Charles H. Sessions; Treasurer, Earl Akers; Auditor, W. E. Davis; Attorney-General, John S. Dawson; Superintendent of Education, W. D. Ross; Superintendent of Insurance, Ike S. Lewis; Commissioner of Agriculture, F. D. Coburn—all Republicans, except governor.

JUDICIARY. Supreme Court: Chief Justice, Wm. A. Johnston; Associate Justices, Judson S. West, Silas Porter, Clark A. Smith, Rousseau A. Burch, Henry F. Mason, and Alfred W. Benson—all Republicans; Clerk, D. A. Valentine.

STATE LEGISLATURE, 1913. Republicans: Senate, 17; House, 51; joint ballot, 68. Democrats: Senate, 23; House, 72; joint ballot, 95. Socialists: House, 2; joint ballot, 2. Democratic majority: Senate, 6; House, 19; joint ballot, 25.

The State representation in Congress will be found in the section *Congress,* article UNITED STATES.

KANSAS, UNIVERSITY OF. A State university for higher education at Lawrence, Kan., founded in 1866. The enrollment in all departments in the autumn of 1913 was 2610. The faculty numbered 188. There were no noteworthy changes in the faculty during the year, and no notable benefactions. The university has an endowment of about $150,000. In addition to its income from this fund, the legislature appropriates about $510,000 annually for its support. The library contains 84,000 volumes. The president is F. Strong, LL.D.

KATSURA, PRINCE TARO. A Japanese statesman, died October 10, 1913. He was born in 1847 at Samurai, of the Choshiu clan. He was twenty years of age when the civil war of the Restoration broke out, and he so distinguished himself with the imperialist forces that he was selected in 1870 to go to Germany for the purpose of studying military science. From that time for the twenty-five years following, his public career was devoted solely to the profession of arms. His career as a soldier ended with his services in the Chinese War. When in 1900 the cabinet of Prince Ito failed, and that statesman withdrew from official office, Prince Katsura became prime minister. He took office under exceptional difficulties. The Parliament was hostile, and his ministry was regarded at the outset as a mere makeshift. He nevertheless achieved the longest tenure of power on record, and his name is associated with the two greatest events in the history of modern Japan—the conclusion of the Anglo-Japanese alliance, and the war with Russia. The popularity which Katsura won during the successful war with Russia was lost to a large extent as a result of the terms of the treaty of Portsmouth, which were regarded as unfavorable by the mass of the Japanese people. As a result of this feeling, Katsura was driven from office. He returned to power in 1908, however, when the country was suffering severely from the economic depression which followed the war, and at once introduced into Parliament a series of important financial measures which were passed and which went far toward relieving financial conditions and restoring public confidence. After the annexation of Korea, Katsura was made a prince. Early in 1911 he found himself obliged to modify his attitude toward the political parties, which had been one of neutrality, and he associated himself more closely with the Seiyu-kai party. The country, however, was becoming impatient of a bureaucratic rule. There was also dissatisfaction at Katsura's financial measures. His position became increasingly difficult, and in August, 1911, he resigned, recommending the appointment of Marquis Saionji as his successor. In the following year he visited St. Petersburg, and though not entrusted with a formal mission, the conversations which he had with Russian statesmen prepared the way for an understanding between Russia and Japan, with regard to their respective interests in Mongolia and Manchuria. On the death of the old emperor, one of the first acts of his successor was to appoint Katsura grand chamberlain and keeper of the great seal, and from this time on his position was that of one of the elder statesmen. He was persuaded to become prime minister again on the fall of the Saionji cabinet, four months after the accession of the new emperor. He found circumstances, in the shape of public hostility to bureaucratic government, too strong, and when a vote of censure was brought forward by the Diet, and riots broke out in Tokyo, Katsura and his colleagues resigned. While Katsura lacked the arts by which politicians achieved popularity, his vigorous intellect, his courage, and his strength of character, made him one of the most conspicuous statesmen of modern Japan.

KEDAH. A native Malaysian state under British protection. Area, 3150 square miles. Population (1911), 245,986—80 per cent. Malays, over 13 per cent. Chinese, 3.3 per cent. Siamese, 2.5 per cent. East Indians. The native sultan administers native affairs. British adviser (1913), W. G. Maxwell.

KEENER, William Albert. An American jurist and educator, died April 22, 1913. He was born in Augusta, Ga., in 1856; graduated from Emory College in 1874, and from the Harvard Law School in 1877. After practicing for several years he was elected justice of the Supreme Court of the State. From 1883 to 1888 he was assistant professor of law at Harvard University, from 1888 to 1890 was Story professor. In 1890 he was appointed professor of law at Columbia University, becoming Kent professor in 1892, and from 1891-1901 was dean of the Law School of Columbia University. He wrote *Treatise on Quasi-Contracts*, and edited *Cases on Contracts; Cases on Equity Jurisdiction; Cases on Quasi-Contracts;* and *Cases on Corporations.*

KELANTAN. A native state on the eastern side of the Malay Peninsula; under British protection. Area (latest estimate), 5870 square miles; population (1911), 286,752, of whom 268,707 were Malays. Kota Bharu, the seat of the British resident as well as of the native rajah, has about 12,000 inhabitants. Imports (1911), SS$2,237,820; exports, SS$1,505,795; revenue, SS$487,674; expenditure, SS$574,850. The debt is a loan from the Federated Malay States and amounts to SS$150,000. British adviser (1913), J. E. Bishop (acting).

KENNY, William John. An American Roman Catholic bishop, died October 23, 1913. He was born at Delhi, N. Y., in 1853, ordained priest in 1878, and made rector at Jacksonville, Fla., in 1879. After filling other pastorates in that State, he was appointed vicar-general in 1889, administrator in 1901, and in 1902 was consecrated third bishop of the diocese of St. Augustine.

KENSICO DAM. See Dams.

KENTUCKY. Population. The population of the State in 1910 was 2,289,905. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 2,336,277.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	3,650,000	74,825,000	$56,867,000
	1912	3,600,000	109,440,000	60,192,000
Wheat	1913	725,000	9,860,000	9,466,000
	1912	686,000	6,860,000	6,791,000
Oats	1913	160,000	3,168,000	1,647,000
	1912	150,000	4,035,000	1,775,000
Rye	1913	22,000	273,000	238,000
	1912	21,000	273,000	240,000
Potatoes	1913	50,000	2,450,000	2,489,000
	1912	51,000	5,151,000	3,451,000
Hay	1913	775,000	a 674,000	11,121,000
	1912	815,000	1,002,000	13,727,000
Tobacco	1913	370,000	b281,200,000	28,120,000
	1912	441,000	343,980,000	22,926,000

a Tons. b Pounds.

Mineral Production. The total value of the mineral products of the State in 1912 was $22,452,984, compared with $19,296,614 in 1911.

The total coal production in the State in 1912 was 11,490,521 short tons, valued at $16,854,207. This was the largest amount of coal ever produced, and exceeded the production in 1911 by 2,440,818 tons. The increased production was due chiefly to the new developments in eastern Kentucky. The number of men employed in coal mines of the State in 1912 was 24,304. These worked an average of 201 days. In 1911 21,921 men worked the same number of days. Over 66 per cent. of the coal mined in 1912 was produced by machines. There were no labor troubles of any significance during the year. There were 51 fatalities in and about the coal mines of the State in 1912; 41 underground, 2 in shafts, and 8 on the surface. Of the deaths underground, 20 were due to falls of roof and coal, and 10 to explosions of gas and dust. The production of petroleum in the State in 1912 was 484,368 barrels, compared with 472,458 barrels in the preceding year. The influence of the steadily rising prices stimulated drilling during the year, and aroused the usual interest in oil operations throughout the State. A 200-barrel gusher was drilled in Ohio County on July 3, 1913, and in October two wells were obtained in Allen County. The wells of the State at the end of 1912 numbered 136, of which 112 were in oil. The value of the clay product of the State in 1912 was $2,443,740, an increase of $75,646 over 1911. The leading clay product is fire brick.

TRANSPORTATION. The total steam railway mileage of the State on June 30, 1913, was 3798.95. There were also 183.05 miles of interurban railroad.

EDUCATION. The total school population of the State in 1913 was 596,351. The enrollment was 459,056, and the average daily attendance was 270,445. These figures are for rural schools only. The number of male teachers was 3814 and female teachers 6002. The average salary of male teachers was $53.47 per month, and female teachers $42.92.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State with their populations in 1913 are as follows: Eastern State Hospital, Lexington, 1093; Central State Hospital, Lakeland, 1554; Western State Hospital, Hopkinsville, 1180; Feeble-minded Institute, Frankfort, 310.

POLITICS AND GOVERNMENT. There was no session of the legislature in Kentucky in 1913. The sessions are biennial, and the last was held in 1912. There was no election for State officers during the year, as the term of Governor McCreary and other State officials does not expire until December 12, 1915. The next State election will be held on November 2, 1915. As the result of violation of the State anti-trust laws by the Imperial Tobacco Company of England and of Kentucky, these companies were fined on November 28. Elections for municipal officers and other representatives to the legislature were held on November 3. The Democrats elected a mayor in Louisville by a majority of 5009. As the result of the elections, both houses of the legislature are overwhelmingly Democratic, the Republican minority in the lower house being reduced.

GOVERNMENT. Governor, James B. McCreary; Lieutenant-Governor, Edward J. McDermott; Secretary of State, C. F. Crecelius; Treasurer, Thomas S. Rhea; Auditor, Henry M. Bosworth; Attorney-General, James Garnett; Superintendent of Public Instruction, Barksdale Hamlett; Commissioner of Agriculture, John W. Newman; Commissioner of Insurance, M. C. Clay—all Democrats.

JUDICIARY. Court of Appeals: Chief Justice, J. P. Hobson, Dem.; Justices, W. E. Settle, Dem.; C. C. Turner, Dem.; J. B. Hannah, Dem.; John D. Carroll, Dem.; T. J. Nunn, Dem.; Shackelford Miller, Dem.; clerk, Robert L. Greene, Dem.

STATE LEGISLATURE, 1913. Democrats, Senate, 32; House, 81: joint ballot, 113. Republicans, Senate, 6; House, 18; joint ballot, 24. Fusion, Senate, 0; House, 1; joint ballot, 1. Democratic majority, Senate, 26; House, 62; joint ballot, 88.

The State representation in Congress will be found in the section *Congress*, under UNITED STATES.

KEOKUK DAM LOCK. See CANALS.

KIAMIL, PASHA. A Turkish statesman, died November 15, 1913. He was born in the island of Cyprus about 1826, in the early days of Sultan Mahmud. In his youth, he removed to Cairo, where he became a student in the Military Academy. His politics won favor with those in authority, and he was chosen to accompany one of the Egyptian princes on a European tour, and was afterwards appointed interpreter at the palace. During this period he first began his careful study of European politics. On the death of the Khedive Mehmet Ali, the reforms which had been begun in Egyptian administration failed to be pressed, and Kiamil, realizing that he might find a better field for his abilities in other parts of the Turkish empire, left Cairo for Constantinople. There, entering the government service, he rose rapidly, and was in 1885 appointed grand vizier. While in this office he endeavored to pursue a policy of fairness toward the non-Mussulman elements of the empire, and to keep on good terms with the great powers. In these efforts he found himself checked by the interference of the court. He finally prepared and submitted to Abdul Hamid, plans for a series of reforms which so shocked that ruler, that Kiamil was immediately dismissed from office. From this year, 1891, to 1895, he remained in disgrace, but in the latter year he was again appointed grand vizier. The great question of that time was the policy to be adopted toward the Armenians, and Kiamil advocated repressing and punishing outrages upon them. These proposals were distasteful to the sultan and Kiamil was soon banished as Vali of Aleppo. Through the influence of foreign ambassadors he was given a similar position at Smyrna, and he remained there for many years. In 1907 complaint of outrages by brigands became so frequent as to lead to complaints by foreign representatives, and Abdul Hamid seized the opportunity to depose Kiamil and to order him into banishment at Rhodes. Kiamil took refuge at the British Consulate-General, which he refused to leave until he was assured of his personal liberty and safety. He thereupon returned to Constantinople, where he lived in strict retirement until the revolution of 1908 recalled him to office as grand vizier. He was confronted with a stupendous task of completely organizing the whole internal administration of the empire, and in an attempt to do this was bitterly opposed by members of the reform committee. As a counterpoise to this body, he encouraged the Liberal Union. This organization, however, had little backing in the country, and its support only further alienated Kiamil from the committee. His difficulties were increased by the publication of a telegram from King Edward to the sultan, speaking in the warmest terms of the grand vizier. This was resented by the Turks, who were opposed to anything like foreign interference. It was also distasteful to those who feared that a too close friendship with England would involve the hostility of other powers. In spite of these difficulties, however, Kiamil received a great ovation from the Parliament in December, 1908, and a vote of confidence in his government was carried unanimously and with great enthusiasm. In the following February, however, he broke with the committee, feeling himself sufficiently secure to attempt a *coup d'état*. This failed, and Kiamil withdrew from political life for more than a year. On the resignation of Ghazi Mukhtar as grand vizier on October 29, 1912, just before the beginning of the Balkan War, Kiamil again became grand vizier and was at the head of affairs during the disastrous period of the war. When the Bulgarians appeared before Tchataldja he was obliged to agree to an armistice on terms most unfavorable to Turkey. He made a strong attempt to obtain some modification of the terms of peace which the allies sought to impose, but after a grand council of the nation held on January 22, 1913, he seemed willing to accept the advice contained in the collective note of the powers. He was, however, spared the humiliation of surrender, for on January 23 he was overthrown by a dramatic *coup d'état* engineered by Talaat Bey and carried on by Enver Bey. His colleague, Nazim Pasha, was murdered by the conspirators, but Kiamil himself was allowed to depart for Egypt, where he remained until April, when he removed to his native island, Cyprus.

KIAOCHOW. A German dependency on the east coast of the Chinese province of Shantung, composed of a harbor, town, and district leased for ninety-nine years from March, 1898. The district was in April, 1898, declared a German protectorate. Exclusive of the bay, the area is 552 square kilometers (213 square miles); native population in 1913, about 192,000. Whites in 1912, 4470. Imports and exports at Tsingtau (the port of Kiaochow) in 1910-11, 69,375,000 and 60,561,000 marks, respectively; in 1911-12, 114,938,000 and 80,295,000. Vessels entered at Tsingtau in 1910-11, 614, of 1,071,000 tons. The Shantung Railway (434.4 kilometers) goes as far as Tsinan in Shangtung. The budget for 1913-14 balanced at 16,787,625 marks (9,507,780 marks imperial subvention). The dependency is administered under the department of the marine by a governor, Captain Meyer-Waldeck, in 1913, residing at Tsingtau.

KING, JOSEPH ELIJAH. An American clergyman and educator, died June 4, 1913. Born in Laurens, N. Y., in 1823, graduated from Wesleyan University in 1847, he was ordained in 1848 to the Methodist Episcopal ministry. From 1847-53 he was principal of the Newberry (Vt.) Seminary; and in 1854 was chosen president of the Fort Edward (N. Y.) Collegiate Institute, where he remained until the time of his death. He was one of the oldest Methodist Episcopal clergymen in the United States. Since 1848 he had been a trustee of Wesleyan University.

KOENIG, GEORGE AUGUSTUS. An American chemist, died January 15, 1913. He was born in Willstatt, Germany, in 1844, and studied at the University of Heidelberg, at the University of Berlin, and elsewhere. In 1868 he removed to the United States. From 1872 to 1879 he was assistant professor of chemistry and mineralogy at the University of Pennsylvania, in the last-named year being appointed full professor in these branches. In 1892 he went as professor of chemistry to the Michigan College of Mines, and in this position served until the time of his death. He discovered several new minerals. One of the most notable of his discoveries was the existence of diamonds in meteoric iron. He contributed to technical and scientific journals at home and abroad, many articles embodying the results of original and valuable research, and he has taken out patents for various processes of his own invention.

KÖNIG EXPEDITION. See POLAR EXPLORATION, *Antarctic.*

KOREA, or officially CHOSEN. The peninsula between the Sea of Japan and the Yellow Sea; formerly an independent monarchy, it became a Japanese protectorate March 2, 1906, and was annexed to Japan August 29, 1910. The capital is Seoul.

AREA, POPULATION, ETC. The area is estimated at 14,123 square ri (84,606 square miles), or nearly the area of Virginia and Tennessee combined. The population on December 31, 1911, is stated at 14,055,869; of whom, Koreans 13,832,376 (7,271,526 males, 6,560,850 females); Japanese 210,689 (114,759 males, 95,930 females); foreigners, 12,804 (11,709 males, 1095 females). Of the total population, 7,397,994 were males, and 6,657,875 females. Of the foreigners, 11,837 were Chinese and 568 Americans. The population of Seoul has been estimated at 278,958; the native population was reported for the end of 1911 at 223,381; native population of Fusan, 72,947. Among the upper classes, Confucianism prevails, and there is a considerable number of Buddhist monasteries in the country. The number of native Christians in 1910 has been reported at about 250,000.

EDUCATION. The Japanese have undertaken the reorganization of the primary school system and the establishment of industrial and technical schools.

PRODUCTION, COMMERCE, ETC. Agriculture is the only productive occupation of importance, but the methods of cultivation are primitive and transportation facilities very inadequate. The chief crops are rice and other cereals, beans, tobacco, hemp, ginseng, and cotton. Gold mining is carried on with some success. Besides gold, various minerals occur, including copper, iron, silver, graphite, and coal.

Imports and exports of merchandise have been valued as follows, in thousands of yen:

	1907	1908	1909	1910	1911	1912
Imps....	40,050	41,026	36,649	39,783	54,088	67,115
Exps....	17,002	14,113	16,249	18,914	18,857	20,986

In 1909 imports of specie and gold and silver bullion amounted to 921,125 yen, and exports 6,959,349 yen; in 1910, 2,376,120 and 9,199,638; in 1911, 4,739,245 and 12,857,023. Leading imports are cotton piece goods, cotton yarn, timber and lumber, kerosene, sugar, coal, cigarettes, wheat and flour, mattings, etc., galvanized iron, rails, and salt. Chief exports in 1910 and 1911, in thousands of yen: Rice, 6278 and 5284; beans, 5663 and 4606; cattle hides, 1005 and 1069; live animals, 634 and 704; fertilizer, 372 and 374; coal, 362 and 376; iron and copper ore, 344 and 280; raw cotton, 225 and 237; gold ore, 517 and 235; fresh fish, 173 and 134; dried fish, 83 and 96; salt fish, 60 and 53; *bêche de mer*, 88 and 95; ginseng, 180 and 70 (855 in 1909); graphite, 114 and 182. Principal exports in 1912: Rice, 7525; beans, 5216; cattle hides, 1032; raw cotton, 435; fish, 421; iron and copper ore, 312; live animals, 208. Imports and exports of merchandise by countries in 1912, in thousands of yen: Japan, 40,756 and 15,369; China, 7032 and 4058; United States, 6460 and 96; United Kingdom, 9798 and 198; Germany, 1592 and 6; Russia in Asia, 73 and 1245; other, 1404 and 14; total, 67,115 and 20,986.

Reported length of railway in operation in 1913, 1345 kilometers (836 miles); telegraph wire in 1912, 13,323 kilometers; post offices in 1912, 485.

Finance. The monetary unit is the yen, whose par value is 49.846 cents. For the fiscal year 1912 the budget balanced at 48,741,782 yen; for 1913, 52,892,209 yen; for 1914, 57,989,680 yen. Each of these budgets included a subvention of 12,300,000 yen from the imperial treasury. Estimated ordinary revenue for the fiscal year 1913, 26,732,332 yen (including proceeds of government enterprises, etc., 13,047,468 and taxes 11,347,536). Estimated ordinary expenditure for the same year, 30,232,490 yen; extraordinary, 22,659,719. Debt at the end of 1912, 43,850,012 yen.

Government. Formerly an independent monarchy, Korea was annexed to Japan August 29, 1910, and placed under the administration of a governor-general, General Viscount (later Count) Terauchi Masakata, who continued to hold the office in 1913. Civil governor-general, Yamagata Isaburo. Each of the thirteen divisions, or provinces, of the country is under a governor.

For the year's history in Korea, see Japan, *History*.

KRUPP SCANDAL TRIALS. See Germany, *History*.

KURIA MURIA ISLANDS. Attached to Aden (q.v.).

KWANGCHOW-WAN. Certain territory leased by China to France for ninety-nine years from April 11, 1898, taken partly from the subprefecture of Soui-Tai and partly from that of Out-Chouan, in the province of Kwantung. It forms a division of French Indo-China (q.v.). The regions around the bay are densely populated; but as the inhabitants have a curious reluctance to declare their numbers, estimates given are of necessity approximate only. The administrative centre of the first conscription is Tche-kam. The European centre of the territory is Fort-Bayard. The local budget for 1912 balanced at 218,950 piasters. The French administrator-in-chief in 1912 was M. Caillard.

KWANTUNG. A Japanese leasehold in the southern part of the Liaotung peninsula (Manchuria). Kwantung is the Chinese name, the Japanese name being Kwanto. Area, 1221 square miles. The population at the end of 1910 was 462,399; or (including certain persons in Manchuria, who, though outside of Kwangtung were regarded as residents thereof) 519,836, as compared with 495,848 in 1909 and 384,755 in 1906. Of the 1910 population, 62,338 were Japanese, and 453,377 Chinese (or Manchus). Of the total, 303,316 were males, and 216,520 females. The population within the limits of Kwantung was estimated at 501,767 in 1913. In 1910, Dairen, the chief port, had 40,758 inhabitants; Ryojun (Port Arthur), 16,797. The agricultural products include cereals, beans, tobacco, and hemp. Some salt is produced. In 1910 imports were valued at 28,732,797 yen, and exports 38,797,925; in 1911, 42,274,722 and 47,416,047; in 1912, 58,198,000 and 55,306,000. The trade is chiefly with Japan. Kwantung forms a customs district under the Chinese maritime customs. About eighty miles of the South Manchurian Railway are in the territory. Estimated revenue and expenditure for the fiscal year 1912, 5,250,216 yen (including Japanese subvention 3,283,090 yen); for 1913, 5,246,887 yen (subvention 3,122,500); for 1914, 5,739,684 yen (subvention 3,047,800). The territory is administered by a governor-general (Lieutenant-General Baron Fukishima in 1913, resident at Ryojun).

"L. I." AND "L. II.," Destruction of. See Aeronautics.

LABOR. The year 1913 was not less notable for memorable features of the labor movement than the years immediately preceding. In the United States there were several labor struggles, among which the most significant were those in the coal mining region of West Virginia, in the copper mines around Calumet, Mich., and the silk strike at Paterson, N. J. See Strikes and Lockouts. Radical theories continued to be presented in the United States by the Industrial Workers of the World (q.v.), and abroad by various brands of Syndicalism (q.v.). In the trade union movement there was no recession, but rather a decided growth in numbers and strength, together with an increasing momentum toward the formation of industrial unions. See Trade Unions.

Among the most notable features of the labor histories of the year were the great successes attending efforts to protect child and women workers. See Child Labor, Minimum Wage, and Women in Industry.

Other phases of the labor problem will be found under: Arbitration and Conciliation, Industrial; Boycott; Workmen's Compensation; Injunction; Industrial Relations Commission; Factory Investigating Commission; Labor, American Federation of; Labor Legislation; Occupational Diseases; Old-Age Pensions; and Welfare Work. Other cross references will be found under these articles. Labor conditions in the United States Steel Corporation are treated under that heading.

Department of Labor. On March 4, 1913, the President signed a bill creating a Depart- of Labor. This action had been demanded by labor leaders for a number of years. The act merely transferred to the new department the bureau of immigration service, the bureau of immigration and naturalization, the division of information, the division of naturalization, the bureau of labor, the children's bureau, and the commisioner of labor previously included in the Department of Commerce and Labor. The old department was named the Department of Commerce; and the bureau of labor became the bureau of labor statistics. The Secretary of Labor was authorized to act as mediator or to appoint commissioners of conciliation to secure the settlement of labor disputes, this being probably the most important of the powers and duties of the new department. The creating act gave the department the function of fostering the welfare of wage-earners, improving their working conditions, and advancing their opportunities for profitable employment. Mr. William B. Wilson, formerly secretary-treasurer of the United Mine Workers of America and member of Congress from Pennsylvania, was appointed the first Secretary of Labor.

Southern Labor Congress. The first annual session of this body, which is a labor organiztion affiliated with the American Federation of Labor, was held at Nashville, November 17. Representatives were present from twelve Southern States, and reports were made on the labor legislation favored by the organized labor of each. Among its policies and principles are:

The encouragement of organization among workers; the dissemination of literature bearing on trade unionism; the assistance of public agitation for labor reforms, especially the short-hour movement; the adoption of the initiative, referendum, and recall in both State and municipal governments.

INTERNATIONALISM. One of the features of the growing international sympathy of wage earners is the increasing frequency of international conventions of trade unionists and the growing custom whereby trade unionists of one country send representatives to the national conferences of trade unions in other countries. The American Federation of Labor, for example, customarily now sends representatives to the British Trade Union Congress and to the Canadian Trades and Labor Congress. It also frequently sends representatives to Continental conventions.

The American Federation was represented at the Eighth International Conference of the Representatives of National Trade Centres which met at Zurich, Switzerland, September 16-18. This is known as the international secretariat, Mr. Carl Legien being the secretary. The bodies affiliated with the National Trade Centres represented in this conference reported a total membership of 7,121,000, an increase of 550,000 over their members in 1911. Among the topics of discussion were: Measures for the abolition of night work and a wider adoption of the legal eight-hour day, as proposed by Sweden; and measures to make the May-day demonstration more truly economic and international in character, as proposed by France. Upon the initiation of the American representatives the organization changed its name to the International Federation of Trade Unions. This body guarantees the autonomy of the organizations of each country. It was voted to hold the next congress in San Francisco in 1915.

Following the adjournment of the foregoing congress there was held at the same place the first Conference of International Trade Union Secretaries. They met to discuss uniformity of reports, and uniformity of trade union statistics.

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LABOR, AMERICAN FEDERATION OF. This is the most comprehensive body among organized labor in the United States, founded in 1881. Its fundamental principles include organization along trade lines with the greatest possible degree of individual trade union autonomy. In recent years it has therefore vigorously opposed Socialism, Syndicalism, and the Industrial Workers of the World. Among the policies which it now favors are the following: Free schools, free textbooks, and compulsory education; reduction of the powers of the courts in the issuance of injunctions in labor disputes; an eight-hour day; one day's rest in seven; the abolition of the contract system on public work; municipal ownership of public utilities; the abolition of the sweat-shop; sanitary inspection of factory, mine, and home; nationalization of telegraph and telephone; the protection of child labor; equal woman suffrage; plentiful play grounds in all cities; the initiative, referendum, and recall; the prohibition of interstate trade in convict-made goods; old age pensions for all civil service employes; prohibition of so-called scientific management schemes in public service; minimum wage legislation.

For the year ending September 30, 1913, it had an average paid-up and reported membership of 1,996,004, an increase of 222,859 over the preceding year. The membership dues for the month of September indicated a total of more than 2,000,000 members. This membership was distributed among 111 national and international unions and 659 local trade and Federal labor unions, with 20,046 local unions. The total expenditures of the federation in 1913 were $258,703. Unions affiliated with the federation publish more than 500 weekly and monthly periodicals. The official publication is the *American Federationist.* The principal officers include Samuel Gompers, president; James Duncan, first vice-president; John B. Lennon, treasurer; and Frank Morrison, secretary. The federation includes a building trades department with James A. Short as president; a metal trades department, with James O'Connell as president; a union label department, with John F. Tobin as president; a mining department, with Charles H. Moyer as president; and a railroad department, with H. B. Perham as president. The general offices are in Washington, D. C.

For a number of years the Federation has made a great effort to secure legislation from Congress limiting the power of the courts to issue injunctions, and to secure the exemption of trade unions from the operations of the trust law. (See TRADE UNIONS.) In the Senate and House investigations of lobbying during the summer and the early fall the Federation and the

National Association of Manufacturers were shown to have strenuously opposed each other not only in Washington, but also in the elections of Congressmen. (See TRUSTS.) It has supported the United Hatters in the famous boycott case of Loewe vs. Lawler. (See BOYCOTT.) For this purpose it has levied a two-cent and a one-cent assessment, the latter on August 4. From these funds were paid out for this case $19,566 in the fiscal year ending September 30. In addition it has supported various strikes and lent great strength to the demands of constituent unions. According to the 1913 report of the Federation 63 international organizations paid during the year $1,956,893 in death benefits. Those paying the largest totals were: Brotherhood of Carpenters, $307,069; Cigar Makers, $273,852; Typographical Union, $234,457; Switchmen, $181,125; Street Railway Employes, $132,300; and Painters, $113,125. In addition, 9 organizations paid $58,420 in death benefits on account of members' wives. Sick benefits paid by 26 bodies aggregated $816,336; Cigar Makers alone, $402,775; and the Molders, $459,434. Traveling benefits were paid by the Cigar Makers to the amount of $33,113. Unemployment benefits paid by 8 unions amounted to $69,445, of which the Cigar Makers paid $42,911, and Spinners paid $13,000. The same report showed that there were 55 unions using labels and 10 using cards, as means of furthering the interests of the organization. In addition there were nearly two score unions using the label of the federation itself. The extent of the propaganda carried on by the federation is shown by the payment of $86.699 for organizing expenses during the 12 months.

CONTEMPT CASE. In December, 1907, the Buck's Stove and Range Company, of St. Louis, had secured an injunction from Justice Wright of the Supreme Court of the District of Columbia restraining the officers of the federation from prosecuting a boycott. This injunction was strongly objected to by those enjoined, on the ground that it denied them the right of free speech guaranteed to them by the Constitution of the United States. In December, 1908, Messrs. Gompers, Mitchell, and Morrison, principal officers of the federation, were found guilty of contempt of court because of failure to respect certain features of the injunction. Justice Wright sentenced them to twelve, nine, and six months' imprisonment respectively. These sentences were affirmed in November, 1909, by the highest court of the District, one of the justices dissenting. The case was then taken to the Supreme Court of the United States. Meanwhile the federation and the Buck company had come to an agreement. The court therefore in May, 1911, dismissed the original injunction suit brought by the company; but, while declaring the sentences in the contempt case to be excessive, ruled that the dismissal of the injunction suit should not prejudice the right of the original court to punish any contempt committed. After investigation by a committee appointed to inquire whether contempt had been committed, Justice Wright in June, 1912, reimposed the sentences of twelve, nine, and six months. The case was then taken once more to the Court of Appeals of the District of Columbia. On May 5 that court, in a divided opinion, sustained the lower court in finding Messrs. Gompers, Mitchell, and Morrison guilty of contempt, but modified the sentences to thirty days in jail for Gompers and $500 fine for each of the others. In the latter part of May counsel for the three defendants filed a petition in the Supreme Court of the United States for a writ of certiorari to obtain a review of the case. About the same time the Supreme Court of the District of Columbia filed a petition asking the same court to reverse that portion of the decision of the Court of Appeals which reduced the penalties imposed. On June 19, the petition for a review of the case was granted. The appeal was heard during the session beginning in October.

LABOR LEGISLATION. Some labor legislation was enacted in nearly every State in 1913 and by the national Congress. It is impossible to give here more than a general indication of the character of this great volume of laws. In addition to the topics treated in the following paragraphs material on the labor legislation of the year will be found under CHILD LABOR; MINIMUM WAGE; ARBITRATION AND CONCILIATION, INDUSTRIAL; OLD-AGE PENSIONS; PENSIONS FOR MOTHERS; WOMEN IN INDUSTRY; and WORKMEN'S COMPENSATION. See also TRADE UNIONS for the exemption of labor organizations from the anti-trust law. There are special articles on the INDUSTRIAL RELATIONS COMMISSION and the FACTORY INVESTIGATING COMMISSION OF NEW YORK. See the article LABOR for the law creating the Department of Labor.

ADMINISTRATION. For several years the conviction has grown that wise legislation and its efficient enforcement requires an extension of the principle of enforcement by means of administrative orders. Experience has shown that, owing to the great diversity of industrial conditions in even the smallest States, it is far better for the legislature, instead of prescribing laws for all situations, to lay down general rules and principles and authorize a board or commission to apply them to particular cases. In 1907 Massachusetts created a board of boiler rules; and in 1911 Wisconsin created its industrial commission with very extensive powers including jurisdiction over trade disputes, workmen's compensation, unemployment, and the health, safety, and wellbeing of all workers. In 1913 this plan in modified form was adopted in Massachusetts, where the State board of labor and industries was given very consiberable administrative power. In Ohio an industrial commission of three members appointed by the governor at $5000 each was created. The power and duties of this commission as described below are about the same as those of the Wisconsin commission. In Oregon and California commissions of three or five were created to regulate wages, hours, and conditions of work for women and children, and in Colorado, Minnesota, Nebraska, and Washington, to regulate wages and conditions of work. In New York and Pennsylvania the labor departments were reorganized and enlarged, and particularly in New York extensive administrative discretion was granted. (See below and FACTORY INVESTIGATING COMMISSION OF NEW YORK.) Arkansas, Montana, and Vermont created labor departments; Delaware and Florida provided special inspectors for child and women workers; and numerous other States reorganized or enlarged their previously established departments.

ACCIDENTS AND DISEASES. Laws requiring

the reporting of accidents were enacted in 14 States. In Florida, Illinois, Maine, Missouri, Montana, New Hampshire, and Pennsylvania laws required the report of accidents from railroads and other public service corporations. The reporting of accidents in factories was required or strengthened in five States; and accidents in mines must now be reported in Colorado, Iowa, and Michigan. The reporting of occupational diseases was required in Maine, Minnesota, New Hampshire, and Ohio. A Massachusetts law gave the State board of labor and industries power to require similar reports. In Connecticut and New York, where reports regarding certain diseases was already required, brass and wood-alcohol poisoning were added to the list. In Missouri, Ohio, and Pennsylvania cases of disease found in monthly medical examinations in lead-using establishments were required to be reported. In addition California, Illinois, Maryland, Michigan, New Jersey, New York, and Wisconsin, in 1911 or 1912, required the reporting of certain occupational diseases. For compensation for industrial accidents, see WORKMEN'S COMPENSATION.

In New York State the factory investigating commission (q. v.), created in 1911, submitted its preliminary report in three volumes (1986 pp.) This report in addition to a summary of the commission's work contained recommendations regarding fire hazards, factory inspection and sanitation, occupational disease and industrial poisoning, bakeries, tenement house manufacturing, the employment of women and children. Largely as a result of this report a law was enacted reorganizing the State Department of Labor. This provided for increased inspection and investigation, regulation of working conditions by departmental rules, and an increase in educational work. The number of inspectors was increased, larger salaries provided, and a larger staff of experts created. A new division of industrial hygiene, consisting of a physician, a mechanical engineer, a chemical engineer, a civil engineer, and ten investigators, was established. More important yet there was created an industrial board of five members including the commissioner of labor as chairman, having power to issue rules and regulations for the protection of life, health, and safety. This form of regulation follows the European custom, also that of the State of Wisconsin, and replaces the more cumbrous form of legislative enactment. The bureau of labor statistics received the title of bureau of statistics and information.

In Ohio an industrial commission of three members to be appointed by the governor was created. This commission combined the functions of the following offices: The State liability board of awards; commission of labor statistics; inspection of mines; inspection of workshops and factories; examiner of steam engineers; board of boiler rules; State board of arbitration and conciliation. The commission was given extensive powers to investigate and to issue executive orders. It may prescribe safety devices, and safeguards for every employment and place of employment to carry out the intent of the existing law; it may establish standards of factory construction and maintenance and enforce reasonable orders for the protection of life, safety, and health of employes. It is expected to promote voluntary arbitration and conciliation, to investigate the extent and causes of unemployment, and adopt means for its avoidance and relief. Any employer affected by a commission order may obtain a hearing on its reasonableness before the commission; but any action to set aside the orders of the commission may be commenced only in the Supreme Court.

MISSISSIPPI TEN-HOUR LAW. In March, 1912, the Mississippi legislature enacted a law limiting to ten hours per day the employment of men and women in manufacturing. The law was contested by the Newman Lumber Company as regards the employment of men, but was sustained by two opinions of the State Supreme Court late in 1912 and early in 1913. This decision is very notable as the first in the United States upholding a general limitation of the hours of men in industry. The Utah eight-hour law applying to mines and smelters had been upheld by the United States Supreme Court in 1898 on grounds of health. But in the famous bake-shop case, Lochner vs. New York, the same court had declared unconstitutional a law limiting the hours of bakers on the ground that the occupation is not a dangerous one. But the Mississippi decision lays much stress on the fatigue and tendency to nervous exhaustion resulting from mechanical and manufacturing trades; and upholds the ten-hour limitation as a reasonable act of legislation. The court after stating that many cases had been prosecuted to preserve the "inalienable rights of labor," made the remarkable statement that "Some day, perhaps, the inalienable right to rest will be the subject of litigation."

LABOR LEGISLATION, AMERICAN ASSOCIATION FOR. This is the American branch of the international association of like name. It has branches in leading industrial States and promotes legislation designed to better labor and industrial conditions.

PROGRAMME. The legislative programme of the association for 1913 included the following: (1) One day's rest in seven, no matter how continuous the industry; (2) protection of all workers against lead-poisoning; (3) extension of uniform reporting of industrial accidents and diseases and the adoption of standard schedules therefor; (4) revision of the Federal employes' compensation act and inclusion therein of compensation for industrial diseases; (5) additional State legislation on workmen's compensation; (6) encouragement of State and national investigations of industrial hygiene and safety; (7) effective legal safeguards for working women; (8) more efficient factory inspection and labor law enforcement.

ANNUAL MEETING. The seventh annual meeting of the association was held in Washington, December 30-31, in joint session with the American Political Science Association. The programme opened with a paper on "The Federal Industrial Relations Commission," by Frank P. Walsh, chairman of that commission. He was followed by a paper on "Labor Law Enforcement Through Administrative Orders," by Charles H. Crownhart, chairman of the Wisconsin industrial commission. Other topics of the programme were as follows: "The Philosophy of Labor Legislation," by W. F. Willoughby, president of the association; "The Practicability of Compulsory Sickness Insurance in America," by Joseph P. Chamberlain of New

York; "Sickness Benefit Funds Among Factory Employes," by W. L. Chandler, a manufacturer of Indiana; "Trade Union Sickness Insurance," by James M. Lynch, New York State commissioner of labor; "Work Periods in Continuous Day and Night Occupations," by Basil M. Manly, special investigator of employment in the iron and steel industry for the United States Bureau of Labor; "Eight Hour Shifts in the Milling Industry," by S. Thurston Ballard, a miller of Kentucky; "Long Hours in Railroading," by Austin B. Garretson, president of the Order of Railway Conductors; and "Constitutional Aspects of Hour Legislation for Men," by Ernst Freund, University of Chicago Law School.

COMMITTEE ON SOCIAL INSURANCE. The association early in the year appointed a committee on social insurance with Edward T. Devine as chairman. The other members were expert statisticians and economists. This committe was expected to make a comprehensive and exhaustive inquiry into the subjects of compensation for industrial injuries and for occupational diseases, sickness insurance, provision for old-age, unemployment, and all other causes of dependency which thrifty workers may provide against by insurance methods.

This committee arranged a conference on social insurance at Chicago, June 5 and 6. Compensation for accidents, insurance against unemployment, sickness, and old-age, and the widows' pension movement were the topics of discussion. The three methods of providing workingmen's compensation, through casualty insurance companies, employers' mutual associations, and State insurance funds, each had its advocates. The general philosophy of social insurance was developed by Prof. W. F. Willoughby of Princeton, who gave as its essentials the protection of workers against all those accidents and misfortunes which may undermine normal standards of work and living, and the assumption of the cost by the entire community. Sickness insurance on the German plan as found in Germany, Austria-Hungary, Luxemburg, Norway, Great Britain, and Russia, was discussed by Dr. I. M. Rubinow, who advocated compulsory sickness insurance with equal contributions by employe, employer, and the State. In the discussion of unemployment insurance Prof. Charles R. Henderson of the University of Chicago pointed out the defects of the Ghent scheme of subsidies to trade unions and advocated the plan of compulsory insurance as illustrated in the British law protecting 2,500,000 men in the building and engineering industries. Dr. Edward I. Devine strongly opposed the widows' pension idea on the ground that it was the old-time disreputable out-door relief under a new guise. As to old-age pensions, both the continental plan of compulsory insurance and the British plan of public noncontributory pensions were defended.

LABOR LEGISLATION, INTERNATIONAL ASSOCIATION FOR. Under the auspices of this association an international conference met at Berne, Switzerland, in September, 1913. The subjects for discussion were international treaties providing for the prohibition of night work for young persons and for a ten-hour maximum working day for women and young persons. Preparatory to this conference memoranda were drawn up, the English translations of which appeared as bulletins of the United States Bureau of Labor Statistics, Miscellaneous Series, Numbers 2 and 3.

The programme of the International Association provides the following with reference to night work of young persons: General prohibition for young persons under eighteen years of age, absolute prohibition for all persons under fourteen; night rest of eleven hours which shall include the periods from 10 P. M. to 5 A. M. Provision is, of course, made for periods of transition from existing conditions to those the association would establish. The memorandum pointed out the following advantages of the prohibition of night work of persons under eighteen: An extension of the period of education; a reduction in the proportion of young persons and an increase in the employment of women and men; the exclusion of young persons from dangerous trades, and a consequent reduction in the number of industrial accidents; improvement in the physical and intellectual efficiency of adult workers; a removal of the damage to the inclination to work and the mental and moral development of young persons due to long hours. With reference to transitional measures the memorandum held five years to be a sufficient time to raise the age limit from fourteen or fifteen to eighteen years. The exception of night work of young persons over sixteen in the glass industry was declared to be purely temporary. It was pointed out that for twelve years many Prussian glass works have employed no children, and in France for many years the work of children has been done by mechanical carriers.

With reference to the maximum working day for women and young persons the programme calls for an international agreement limiting such to ten hours, such limitation to be introduced by degrees. The memorandum, after reciting the experiences of England, France, Germany, Netherlands, Switzerland, Austria, Russia, and Italy, declared four years to be sufficient time to introduce a ten-hour day. This transition period was considered ample to prepare public opinion and to permit employers to make proper accommodations, as well as to enable administrative measures to be adopted.

LABRADOR. A peninsula in the northeastern part of British America, attached partly to Newfoundland (q.v.) and partly to Canada.

LABUAN. See STRAITS SETTLEMENTS.

LACROSSE. The Crescent A. C. retained its supremacy in lacrosse in the United States, and made an excellent showing in contests with teams from Canada, the home of the game.

The Crescents played a long schedule, their principal matches and results being: Crescent 7. University of Pennsylvania 3; Crescent 10, New York L. C., 4; Crescent 2, Boston L. C. 0; Crescent 8, New York L. C. 4; Crescent 7, Carlisle Indians 1; Crescent 4, Toronto University 4; Crescent 4, St. Simon L. C. of Toronto 3; Crescent 9, Prescott L. C. of Toronto 9; Crescent 3, Montreal A. A. 4.

The victors in the intercollegiate league were Harvard in the northern division, and Johns Hopkins in the southern division. These teams did not meet to decide the championship.

LADD, HERBERT WARREN. An American public official, former governor of Rhode Island, died November 29, 1913. He was born in New Bedford, Mass., in 1843, and educated at the public schools of that city. During the Civil War he acted as correspondent for the *New*

Bedford Mercury. He engaged in business at the close of the war, and established one of the largest dry goods houses in Providence, acquiring a large fortune. He gave an astronomical observatory to Brown University; and he was elected governor of Rhode Island in 1890; and again in 1891.

LAFAYETTE COLLEGE. An institution for higher education founded at Easton, Pa., in 1832. The enrollment in 1913 was 582. The faculty numbered 59. There were no noteworthy changes in the faculty during the year and no notable benefactions were received. The productive funds of the university amount to about $625,000, and the annual income to about 130,000. The library contains about 40,000 volumes. The president is Rev. E. D. Warfield, LL.D.

LA FONTAINE, HENRI. A Belgian publicist, who received in 1913 the Nobel Peace Prize. He was born in Brussels in 1854. In 1878 he became secretary of a model technical school for girls, and in 1889 was appointed secretary of social and political studies. This prepared the way for the revision of the Belgian Electoral law in 1903. He joined the Socialist party in 1891 and two years later founded *La Justice*. In 1894 he took part in founding Brussels University and was appointed Professor of International Law in that institution. From 1895 he sat continuously in the Belgian Parliament, with only two years intermission. From his earliest manhood, he espoused the cause of internationalism, and has been one of the world's most active pacificators. He was a member of the Interparliamentary Union, and attended international congresses of arbitration and peace. In 1910, in coöperation with Paul Otlet, he founded the Union of International Associations. He was the author of several important works dealing with international peace and arbitration. See NOBEL PRIZES.

LAKE MOHUNK CONFERENCE ON INTERNATIONAL ARBITRATION. See ARBITRATION, INTERNATIONAL.

LAMONT, SIR JAMES. An English explorer, died July 29, 1913. Born in 1828, and educated at Rugby and at the Edinburgh Military Academy, from 1846 to 1848 he served in the British army. In 1856 he made a voyage to Spitzbergen. After returning from a second voyage to the same region, he entered Parliament, where he occupied the seat from 1865-68. In the latter year he abandoned his seat in Parliament and built a vessel designed to embody all requirement for Arctic navigation. This vessel was launched in 1869, and in it he made several voyages to Spitzbergen and Novaya Zemlya.

LAMPS, ELECTRIC. See ELECTRIC LIGHTING.

LANCE, SIR FREDERICK. A British major-general, died January 13, 1913. He was born in 1837 and in 1856 was gazetted to the 55th Bengal Native Infantry. Transferred in the following year to the 16th Punjab Infantry, he saw much service in the Indian Mutiny; and he took part in several campaigns in India and in the Afghan campaign of 1870-80. He retired from active service and in 1899 was appointed lieutenant-general.

LAND POLICY, LIBERAL. See GREAT BRITAIN.

LANDS, PUBLIC. During the fiscal year 1913, the so-called "three-year homestead law" was in effect. This reduced from five to three years the residence period on a homestead taken from the public domain, and otherwise improved conditions under which title of land is proven.

The number of patents written during the year was 63,296, compared with 67,475 in the previous year. The total area of public and Indian lands originally entered and allowed during the year was 15,867,222 acres, an increase of 1,292,533 acres compared with 1912. The area patented during the fiscal year was 12,678,076 acres, an increase of 2,542,601 acres compared with the previous year. Of the above area 7,320,057 acres were patented under the homestead law.

Progress in 1913 was made in the investigation of lands of different character, and the circumstances under which they have been acquired. As a result of such investigations in oil lands in California, a number of suits were instituted during the year by the Department of Justice to recover lands patented as agricultural which in fact were oil lands in character.

During the year field investigations were completed in connection with 1129 Alaska coal claims. Proceedings were taken in 99 of these coal claims, which brings the total up to 399 on which hearings have been ordered.

In the year 1913, 12 national forests were enlarged and 27 reduced. At the end of the year there were 163 national forests embracing 168,616,648 acres. The withdrawals for power-site purposes during the year numbered 89, embracing 152,136 acres, and 68,034 acres hitherto withdrawn were restored. In December, more than 1,678,000 acres of withdrawn lands in the Western States were restored to entry, and about 50,000 acres were withdrawn, leaving a net decrease in outstanding withdrawals in the public land of the States of nearly 1,630,000 acres. This action was based on recommendations to the Secretary to the United States Geological Survey. The States most affected were Montana, in which 220,000 acres heretofore included in phosphate lands were shown to be not phosphate bearing and were therefore restored to entry; North Dakota, in which the withdrawals of coal lands were reduced by over 646,000 acres, and Washington and Wyoming, where there were reductions of nearly 500,000 and 400,000 acres respectively in coal-land withdrawals. The principal ores withdrawn were in California and Wyoming. In California, public-water reserves aggregating 36,000 acres were created, and in Wyoming more than 12,000 acres were withdrawn for the same purpose. The net result of these transactions was to reduce the entire output withdrawn in the public land States from somewhat less than 67,900,000 acres at the beginning of December, to a little less than 66,270,000 acres at the end of the month. This area withdrawn may be compared with approximately 88,000,000 acres that have thus far been classified under the several mineral-land laws. During the month of December, somewhat less than 2,000,000 acres were classified as non-irrigable, and by order of the Secretary of the Interior, were open to entry under the enlarged-homestead act. This makes a total of about 207,375,000 acres of land that have been classified as non-irrigable since the passage of the act. The total area of lands that have been classified in the Western States up to the end of December, 1913, aggregates nearly 295,700,000 acres. The Secretary of the Interior in his annual report for 1913 makes several recommendations for legislation. These include the modification of the present form of appropriations for public service; an amendment of the act of June 2, 1874, by which its protection will be extended to include desert-land, entrymen as well as homesteaders; and the consolidation of the Carey act, by which several acts and amendments may be brought together. In relation to Alaska, he recommends the enlargement of certain privileges and modifications of the Homestead law, the amendment of legislation regulating a 60-foot roadway along the shores of navigable rivers, and the provision for the utilization of mineral or medicinal springs.

Water Power Sites. Walter L. Fisher, former Secretary of the Interior, made a statement relative to water power conditions before the meeting of the American Forestry Association in January. This statement was widely commented upon. Mr. Fisher affirmed that water power on the public domain may be developed in one of two ways. "We can," he said, "either turn over that water power to private development and ownership, absolutely untrammeled, unrestrained and unregulated, except as we can hereafter regulate it, like any private business, as it were, from the top; or we can dispose of it by a permit which, by the very terms of the statute, is revokable the moment after it is granted. Neither of these methods is satisfactory at the present time. Our natural resources have been tied up, which is a great disadvantage. This," he said, "we cannot offset by employing fuel resources which are destroyed in the use, whereas the water power that we might harness and develop is perpetual and continual. Its use is the most living and vital example of conservation in every sense of the word." Mr. Fisher declared that the majority of the water power people believe that the time has come when the power interests should frankly recognize the public interests involved in their business. Those public interests should impose upon private companies the payment of compensation to the Federal government. At first this payment should be nominal, but at the beginning of each successive ten-year period the Secretary of the Interior should have the right to readjust such compensation, and there should be complete publicity of records and regulations of rates and services as may be prescribed by the proper authorities, the grant being subject to revocation on violation of its conditions. Such a contract has been entered into with the Great Falls Power Company of Montana, which controls the important power development of the Great Falls of Missouri in that State. The significance of this particular grant is twofold: (1) it marks the first step toward the electrification of a part of the transcontinental railways of the United States; (2) it is the latest example of making effective the regulations regarding large power interests for which those interested in conservation have long contended.

LANDSCAPE GARDENING. During the year 1913 increased attention was given to the beautifying of public parks and gardens and of private estates and plots in city suburbs. The principal works in progress at the close of the year included the Botanical Garden for Brooklyn, N. Y.. the development of South Philadelphia, including League Island Park; public play grounds in Boston, Mass., and New London, Conn; a park system and civic centre for Denver Col.; parks and play grounds for Little Rock, Ark., and Schenectady, N. Y.; the Arroyo Seco Parkway, at Los Angeles, Cal., for which the land alone was to cost $1,100,000; parks in Buffalo, N. Y.; South Shore Park for Milwaukee, Wis.; and a park system for Gary, Ind. Many other small towns had plans of the same kind under consideration. The so-called garden suburb was a recent development near the larger cities, and of those which had been undertaken and were partly completed at the close of the year may be mentioned Forest Hills Gardens, N. Y., Torrance, an industrial town near Los Angeles, Cal., and Neponset Garden Village, a copartnership housing plan at Walpole, Mass.

The main characteristic of landscape gardening during the year was the production of effects with the minimum of artificial device of either design or planting, in public work as well as in the development and improvement of private estates, large and small. Landscape gardeners produced their results by making permanent plantations showing distinctive characteristics and fitting American conditions; and while in specific instances it was necessary to introduce exotic plants and trees and to use Japanese or other foreign "motifs," the prevailing note in recent work was natural simplicity. In certain parts of the United States, for instance, the use of the native cedars, spruces, and other evergreens indigenous to the locality became very usual in making landscape effects, replacing foreign shrubs, or plants set in stiff conventional designs. More discriminating taste in the use of fountains, sun dials, pergolas, and the like, was shown by adapting them more strictly to the locality, the surrounding scenery, and the architectural style of the nearby buildings.

The American Society of Landscape Architects, which was formed in 1899, held its regular annual meeting in Chicago in May, 1913. The officers of the society in 1913 were: Executive committee, Warren H. Manning, president; James Sturgis Pray, vice-president; Alling S. DeForest, secretary; Henry V. Hubbard, treasurer.

The Boston Society of Landscape Architects was organized in May, 1913, in that city with a membership limited to those practicing their profession in the New England States.

Education. In addition to courses of study in this subject open to women at Cornell, there was at Groton, Mass., the Lowthorpe School of Landscape Architecture, Gardening, and Horticulture for women, which has been in operation since 1901, and had graduates practicing in several States, including Massechusetts, Rhode Island, Pennsylvania and California. The school offered a complete two years' course, comprising planting, designing, horticulture, green house work, object lessons in agriculture, architectural drawing, topographical maps, and surveying and engineering. In addition to this, students had free use at all times of the Arnold Arboretum of Harvard University at Cambridge, and could work there under the tuition of Professor Sargent. The school itself had a tract of 17 acres of land, meadow and pasture, in addition to a fruit orchard and flower and vegetable gardens where the students received practical instruction.

LANE, Franklin Knight. An American public official and Secretary of the Interior in the cabinet of President Wilson. He was born in Prince Edward Island in 1864 and graduated from the University of California in 1886. In 1889 he began the practice of law in San Francisco, and from 1897-1902 was corporation counsel for that city. It the latter year he was a candidate for governor of the State, and in 1903 he received the votes of the Democratic members of the California legislature for United States senator. Appointed in 1905 a member of the Interstate Commerce Commission, he served as its chairman until his selection as Secretary of the Interior by President Wilson.

LANE, Harry. United States senator (Democrat) from Oregon. He was born in Corvallis, Benton County, Ore., in 1855, and was educated in the public schools. He received his degree in medicine in 1876, and from 1887 to 1891 was superintendent of the Oregon State Insane Asylum. He was mayor of Portland from 1905 to 1909; received the Democratic nomination for senator in the primary election held November, 1912, and was elected by the legislature in 1913. His term of office expires March 3, 1919.

LANGUAGE, International. The ninth convention of Esperantists, celebrating the twenty-sixth anniversary of the birth of Esperanto, took place in Berne, Switzerland, from August 24 to August 31. About 1100 delegates from 33 different nationalities were present. Plans were offered for a system of international propaganda to supplement the work which had hitherto been done exclusively by national organizations. A new feature of the convention was an oratorical contest in Esperanto in which the first prize was won by M. Pichon of Paris, and the second by M. Mahn, of Breslau. The next congress will take place in Paris, in 1914. There are no really new developments in the feud between Esperantists and Idists or other advocates of artificial language systems. The attack made upon the claims of all international languages by Professor Danzat of Paris, in his *Défense de la langue française*, should, however, be mentioned.

LAOS. The French territory of Laos, a division of French Indo-China (q.v.), contains only about a third of the country known as the Laotian Principalities; and is in the most barren and sparsely peopled portion. Mountain masses covered with impassable forests occupy the northern regions; in the south, between long chains of hills, are fertile plains more or less undulating. Cardamoms, rice, benzoin, wax, rubber, resins, etc., are exported. The trade is included with that of French Indo-China. The capital is Vientiane. The local budget for 1912 balanced at 898,729 piasters. The kingdom of Luang-prabang is the most considerable native agglomeration; other principalities or provinces have native chiefs. The French resident in 1913 was Bourcier Saint-Chaffray.

LARKIN, James. See Great Britain, *History;* Socialism; and Strikes.

LARRABEE, William Henry. An American editor and writer on scientific subjects, died May 13, 1913. He was born in Alfred, Maine, in 1829; graduated from Depauw University in 1845; and was admitted to the bar. From 1862-65 he was assistant editor of the *Methodist* in New York City, and from 1865-70 associate editor of the Brooklyn *Daily Union*. He contributed to several reviews and encyclopædias of scientific and religious subjects. His published writings include *How the World was Made* and *Earthquakes and Volcanoes* in the *Library of the Great World; Education through the Agency of Religious Organizations;* and many articles and reviews and translations in various publications.

LATHBURY, Mary Artemisia. An American author and hymn writer, died October 21, 1913. She was born in Manchester, N. Y. in 1841, for several years taught art, and then engaged in editorial work. From 1874 until the time of her death she was occupied with general literature and illustration. Best known as the author of *Chautauqua Songs and Hymns in Church Collections*, she also wrote, and illustrated: *Out of Darkness into Light* (1880); *Seven Little Maids* (1882); *Twelve Times One* (1885); *Story of the Bible* (1898), etc.

LAW, Bonar. See Great Britain, *Home Rule Bill*, and *War or Conference.*

LAW LIBRARIES, American Association of. See Library Association, American.

LAWN TENNIS. Davis Cup Matches. The capture of the Davis International Challenge Cup by an American team was the most important happening in the tennis world in 1913. This cup, which is emblematic of the world's championship, had been wandering about Australasia and Great Britain since 1903 despite the efforts of the United States players to regain possession of it. That the Americans finally achieved success was due to the wonderful playing of Maurice E. McLoughlin of California. Eight countries—the United States, Germany, France, Great Britain, Canada, Australasia, Belgium, and South Africa—took part in the international matches.

A preliminary round contested by Germany and France at Wiesbaden, Germany, resulted in a victory for the Germans, who won four matches and lost one. The German team comprised Oscar Kreuzer, F. W. Rahe, and Herman Klein-Schroth. The French players were Andie H. Gobert, Max Decugis, and M. Gerrnot. While the Wiesbaden matches were taking place, the United States and Australasia were battling in another preliminary round on the courts of the West Side Tennis Club, New York City. The United States team, made up of M. E. McLoughlin, R. Norris Williams, and Harold H. Hackett, defeated the Australasian players—Stanley N. Doust, A. B. Jones, and Horace Rice—by four matches one. A third preliminary round was fought on the courts of the Queens Club, London, with the Canadian and South African teams as contestants. The Canadians were Robert B. Powell and Bernard P. Schwengers, who defeated the South Africans, R. F. LeSueur and V. R. Gauntlett, three matches to one. The next step in the international struggle was the semi-final round on the courts at Nottingham, England, between the United States and Germany. The United States players defeated the German team which had been strengthened by the addition of Otto Froitzeim five straight matches. In another semi-final round at Folkestone, England, the Canadians defeated the Belgians—Chevalier Paul de Borman, A. G. Watson, and W. H. DeVivier—five straight matches. In the final round at Wimbledon, England, the United States defeated the Canadians by winning the three matches played and by so doing became the challenging aggregation.

The British tennis experts were confident their country's players would retain possession of the cup. They counted on C. P. Dixon and H. Roper Barrett to win the doubles and J. C. Parke to capture one of the singles events. McLoughlin, however, upset their hopes by a wonderful rally when the English were within one stroke of victory.

A summary of the various rounds in the international matches follows:

Davis Cup preliminary round, at West Side Club, New York City: Singles—Maurice E. McLoughlin, United States, defeated Horace Rice, Australasia, 6—1, 6—3, 6—3; R. Norris Williams, United States, defeated Stanley N. Doust, Australasia, 6—4, 6—4, 1—6, 7—5. Doubles—Stanley N. Doust and A. B. Jones, Australasia, defeated Harold H. Hackett and Maurice E. McLoughlin, United States, 6—2, 2—6, 7—5, 2—6, 9—7. Singles—Maurice E. McLoughlin, United States, defeated Stanley N. Doust, Australasia, 6—4, 6—4, 6—2; R. Norris Williams, United States, defeated Horace Rice, Australasia, 1—6, 4—6, 6—1, 9—7, 6—2.

Preliminary round, at Wiesbaden, Germany: Singles—O. Kreuzer, Germany, defeated Andre H. Gobert, France, 1—6, 6—4, 6—2, 6—3; Max Decugis, France, defeated F. W. Rahe, Germany, 2—6, 6—4, 2—6, 8—6, 7—5. Doubles—H. Kleinschroth and F. W. Rahe, Germany, defeated Max Decugis and M. Germot, France, 7—5, 6—4, 4—6, 9—7. Singles—O. Kreuzer, Germany, defeated Max Decugis, France, retired; F. W. Rahe, Germany, defeated Andre H. Gobert, France, 6—1, 6—1, 6—1.

Preliminary round, at Queen's Club, London: Singles—Robert B. Powell, Canada, defeated R. F. La Sueur, South Africa, 6—3, 4—6, 3—6, 7—5; V. R. Gauntlett, South Africa, defeated Barnard P. Schwengers, Canada, 11—9, 6—3, 6—0. Doubles—Robert B. Powell and Bernard P. Schwengers, Canada, defeated V. R. Gauntlett and R. F. Le Sueur, South Africa, 7—5, 6—3, 3—6, 6—3. Singles—Bernard P. Schwengers, Canada, defeated R. F. Le Sueur, South Africa, 6—3, 6—2, 6—3; other match not played.

Semi-final, at Nottingham, England: Singles——R. Norris Williams, United States, defeated Oscar Kreuzer, Germany, 6—4, 6—2, 4—6, 6—1; Maurice E. McLoughlin, United States, defeated Otto Froitzheim, Germany, 5—7, 2—6, 6—4, 6—2, 6—2. Doubles—Harold H. Hackett and Maurice E. McLoughlin, United States, defeated Herman Kleinschroth and Frederich Wilhelm Rahe, Germany, 6—4, 2—6, 6—3, 8—6. Singles—R. Norris Williams, United States, defeated Otto Froitzheim, Germany, 5—7, 6—1, 6—3, 6—1; Wallace F. Johnson, United States, defeated Oscar Kreuzer, Germany, 7—5, 6—4, 5—7, 6—4.

Semi-final, at Folkestone, England: Singles—Robert B. Powell, Canada, defeated Chevalier Paul de Borman, Belgium, 6—2, 6—1, 6—1; Bernard P. Schwengers, Canada, defeated A. G. Watson, Belgium, 6—4, 6—1, 6—0. Doubles—Robert B. Powell and Bernard P. Schwengers, Canada, defeated A. G. Watson and W. H. du Vivier, Belgium, 6—2, 6—2, 6—2. Singles—Bernard P. Schwengers, Canada, defeated Chevalier Paul de Borman, Belgium, 4—6, 6—4, 6—2, 6—2; Robert B. Powell Canada, defeated A. G, Watson, Belgium, by default.

All Comers' Championship. Upon McLoughlin's return to the United States he entered the all comers' championships at Newport, R. I., and successfully defended his title as single champion by defeating Williams in the final round. McLoughlin and T. C. Bundy retained the doubles title, winning their matches with J. R. Strachan and Clarence J. Griffin, both of California. The Pacific Coast produced another great player during the year in the person of William M. Johnston, 17 years old, who won the Longwood singles and the New York State championship. Watson M. Washburn, a Harvard player, captured the metropolitan championship while J. R. Strachan won the national clay court title. Miss Mary Browne of California retained the women's championship and with Mrs. R. H. Williams of Chicago won the doubles event. Miss Browne and W. T. Tilden were victors in the mixed doubles match.

A summary of the principal tournaments in the United States, Canada, and Europe follows:

All Comers' National Championship, at Newport, R. I.: Men's singles, final and championship round—Maurice E. McLoughlin defeated R. Norris Williams, 6—4, 5—7, 6—3, 6—1; men's doubles, challenge round—Maurice E. McLoughlin and Thomas C. Bundy, holders, defeated John R. Strachan and Clarence J. Griffin, challengers, 6—4, 7—5, 6—1.

Women's National Championship, at Philadelphia: Singles challenge round—Miss Mary Browne, holder, defeated Miss Dorothy Green, challenger, 6—2, 7—5; doubles, final round—Miss Mary Browne and Mrs. R. H. Williams defeated Miss Edna Wildey and Miss Dorothy Green, 12—10, 2—6, 6—3; mixed doubles—Miss Mary Browne and W. T. Tilden defeated Miss Dorothy Green and C. S. Rogers, 7—5, 7—5.

National Clay Court Championship, at Omaha: Men's singles, final round—John R. Strachan defeated Walter Merrill Hall, 6—0, 6—4, 4—6, 6—4; doubles, final round—John R. Strachan and Clarence J. Griffin defeated Walter Merril Hall and Fred H. Harris, by default.

Men's National Indoor Championship, at New York City: Singles, final round—Gustave F. Touchard defeated George C. Shafer, 6—4, 3—6, 6—3, 6—4; doubles, final round—Wylie C. Grant and George C. Shafer defeated Gustave F. Touchard and W. B. Cragin, jr., 6—2, 6—2, 6—4.

Women's National Indoor Championship at New York City: Singles, final round—Miss Marie Wagner defeated Mrs. Charles N. Beard 6—1, 6—1; doubles, final round—Miss Wagner and Mrs. Kuthoff defeated Miss Fannie Fish and Miss Alice Fish, 10—8, 6—2.

Pacific Coast Championship, at Delmonte, Cal.: Men's singles, final round—William M. Johnston defeated John R. Strachan, 6—1, 6—1, 3—6, 4—6, 6—4; men's doubles, final round—William M. Johnston and Elia Fottrell defeated John R. Strachan and Clarence J. Griffin, 10—8, 6—0, 2—6, 6—3; women's singles, final round—Miss Van Vliet defeated Mrs. Nicholas, 6—2, 6—1; women's doubles, final round—Miss Meyers and Miss Van Vliet defeated Miss Cully and Miss Herron, 6—1, 6—2.

Meadow Club Cup Tournament, at Southampton, N. Y.: Men's singles, final round—William J. Clothier defeated Gustave E. Touchard, 6—2, 6—1, 6—3; men's doubles, final round—J. S. Strachan and Clarence J. Griffin defeated William A. Larned and William J. Clothier, 3—6, 6—4, 2—6, 6—3, 6—2.

Siwanoy Open Tournament, at Mount Vernon, N. Y.: Men's singles, final round—G. A. L. Dionne defeated H. Fraser Campbell, 6—2, 6—0, 6—4; men's doubles, final round—M. I. L. Galvao and A. Jolliffe defeated E. F. Leo and A. J. Ostendorf, 6—4, 6—3, 4—6, 8—6; women's singles, final round—Miss Marie Wagner defeated Miss Margaret Grove, 6—2, 6—4; women's doubles, final round—Miss Marie Wagner and Miss Fish defeated Mrs. C. N. Beard and Miss Handy, 9—7, 6—3.

Lake George Championship, at Hotel Sagamore: Men's singles, final and championship round—C. L. Johnston, Jr., defeated C. E. Bacon, 4—6, 6—2, 6—3, 9—7; men's doubles, final and championship round—C. L. Johnston, Jr., and F. H. Gates defeated R. W. Bacon and C. E. Bacon, 11—9, 6—3; women's singles, final and championship round—Miss Helen Simpson defeated Mrs. E. P. Townsend, 6—2, 9—7.

National Intercollegiate Championship, at Haverford, Pa.: Singles, final round—R. Norris Williams, Harvard, defeated Watson M. Washburn, Harvard, 6—4, 3—6, 6—4, 6—1; doubles, final round—Washburn and J J. Armstrong, Harvard, defeated Williams and E. H. Whitney, Harvard, 4—6, 4—6, 7—5, 8—6, 6—2.

English Championship, at Wimbledon, London: Men's singles, final round—Maurice E. McLoughlin defeated S. N. Doust, 6—4, 6—4, 7—5; challenge round—Anthony F. Wilding, holder, defeated Maurice E. McLoughlin, challenger, 8—6, 6—3, 10—8; men's doubles, final round—F. W. Rahe and H. Kleinschroth defeated A. E. Beamish and J. C. Parke, 6—3, 6—2, 6—4; challenge round—C. P. Dixon and H. Roper Barrett, holders, defeated F. W. Rahe and H. Kleinschroth, challengers, 6—2, 6—4, 4—6, 6—2; women's singles, challenge round—Mrs. Lambert Chambers, challenger, defeated Mrs Larcombe, holder, by default; women's doubles, final round—Mrs. McNair and Miss Boothby defeated Mrs. Sterry and Mrs. Lambert Chambers, 4—6, 2—4, default.

Canadian International Championship, at Niagara-on-the-Lake: Men's singles, final and championship round—Clarence J. Griffin defeated E. H. Whitney, 9—7, 1—6, 6—2, 9—7; men's doubles, final and championship round—Clarence J. Griffin and William M. Johnston defeated R. C. Seaver and E. H. Whitney, 6—2, 6—3, 6—3; mixed doubles, final round—Miss Mary Browne and William M. Johnston defeated Mrs. Robert H. Williams and Clarence J. Griffin, 4—6, 6—3, 6—4; women's singles, final round—Mrs. Robert H. Williams defeated Miss Mary Browne, 8—6, 3—6, 6—4.

Hard Court Championship of the World, at St. Cloud, France: Anthony F. Wilding defeated Andre H. Gobert, 6—3, 6—3, 1—6, 6—4; men's doubles, final round—H. Kleinschroth and Baron von Bissing defeated Otto Froitzheim and Anthony F. Wilding, 7—5, 0—6, 6—3, 8—6; women's singles, final round—Miss M. Rieck defeated Miss M. Broquedis, 6—3, 4—6, 6—4; mixed doubles, final round—Miss E. Ryan and Max Decugis defeated Mrs Golding and Anthony F. Wilding by default. See Racquets.

LAW SCHOOLS. See Universities and Colleges.

LEACH, Sir Edward Pemberton. An English soldier, died April 25, 1913. He was born in Londonderry, Ireland, in 1847. In 1886 he entered the Royal Engineers. He served in the Looshai expedition in 1871-72, in the Afghan War in 1879-80, in the Sudan in 1885, and was subsequently promoted to be colonel and commanded the troops at Korosko and the British brigade at Assuan. In 1897 he was made major-general, from 1900-5 was commander at Belfast, and shortly after that he became commander-in-chief in Scotland, a position which he held for four years.

LEAD. The production of lead in the United States from domestic ores in 1912 was 415,395 short tons, valued at $37,385,550, a gain of 9532 tons in quantity, and $875,880 in value over 1911. The lead-smelting industry in 1912 did not fully share the general prosperity of the metal industries. Though the price of lead in London rose to the highest point in thirty years, and averaged nearly a cent a pound higher than in 1911, the average New York price was the same as in the preceding year. As a result, the total production of primary refined lead slightly decreased, although the domestic production more than held its own. The chief producer among the States in 1912 was Missouri. In that State were mined 162,610 short tons, compared with 182,203 short tons in 1911. Idaho ranks second with 126,670 short tons in 1912, compared with 117,335 in 1911. Next in order of rank are Utah and Colorado, which produced respectively about 60,000 and 37,000 short tons in 1912. No other State produced over 6000 tons in 1912.

The production of lead in the United States in 1913 is given by the *Engineering and Mining Journal* as 433,476 tons. Of this, desilverized lead comprised 261,216 tons; antimonial lead, 16,345; lead from S. E. Missouri, 133,203; lead from S. W. Missouri, 22,312. The lead from foreign countries in 1913 amounted to 57,074 tons. The world's production of lead, according to the same authority, was, in 1912, 1,189,100 metric tons, of which there was produced in Europe 542,000 metric tons; in Mexico, 120,000; and in Canada, 16,300. The largest production in Europe came from Spain, 187,700; from Germany, 165,000; from France, 33,000; from Great Britain, 29,000; from Belgium, 57,000. Other countries producing lead in considerable quantities are Austria-Hungary, Greece, and Turkey. Australia contributed also a large amount in 1912—107,400 tons. For notes on the metallurgy of lead, see Metallurgy.

LEAGUE OF LIBRARY COMMISSIONERS. See Library Association, American.

LEAKE, Joseph Bloomingdale. An American soldier and lawyer, died June 2, 1913. He was born in Deerfield, N. J., in 1828. When he was eight years of age his parents moved to Cincinnati. He graduated from Miami University in 1848, was admitted to the bar in 1850, went into politics, and in 1861 was a member of the Iowa House of Representatives. In the following year he was elected United States senator, but resigned to become captain of the 20th Iowa Volunteers. He became lieutenant-colonel and in 1865 was made colonel and brigadier-general. At the close of the war he was again elected United States senator. He held several important offices in Iowa until 1871, when he removed to Chicago. In 1879 he was made United States attorney for the Northern District of Illinois and served five years. In 1887 he was appointed a member of the Chicago board of education.

LEATHER. The leather industry during the year 1913 continued to reflect a condition that had been developing for several years. A shortage of cattle all over the world naturally led to a scarcity of hides and leather products so that prices were forced higher and for the greater part of the year leather was in active demand. This was not so marked in the first part of the year, but the demand developed later, and at the end of the year a shortage of 250,000 country hides, and over 100,000 calf and kip hides, was claimed, a condition that never had threatened until a few years previously. The increased cost of hides naturally led to increased prices for leather and was reflected in the boot and shoe (q.v.) and other industries. The margin of profit in tanning was fairly close during the year, and with a growing demand for hides in the United States, it was thought that this would be increased so as to afford greater profit to the tanners. In Europe the demand for hides, which had been active for much of the year, began to slacken towards the end as there were large imports from South America and Asia.

AVERAGE PRICES OF HIDES IN THE UNITED STATES

PACKER HIDES

	Heavy native steers	Butts	Heavy Texas steers	Light Texas steers	Colorado steers	Heavy native cows	Light native cows	Branded cows	Native bulls	Branded bulls	Aver. price
1913......	$18.38	$17.42	$18.06	$17.72	$17.26	$17.28	$17.27	$17.19	$14.82	$13.80	$16.92
1912......	17.69	16.17	16.58	16.14	15.88	13.87	13.50	12.56	12.11	10.50	13.318
1911......	14.81	13.50	14.32	13.54	13.47	16.40	16.30	15.71	14.07	12.03	15.697
1910......	15.29	13.71	14.88	13.77	13.42	13.79	13.04	12.40	11.96	12.04	11.931
1905......	....	....	....	....	....	....	....	....	....	....	12.847
1900......	....	....	....	....	....	....	....	....	....	....	10.614
1896......	....	....	....	....	....	....	....	....	....	....	6.980

COUNTRY HIDES

	No. 1 heavy steers	Country packer brd. flat	No. 1 heavy cows	Country brd. flat	No. 1 buffs	No. 1 extremes	No. 2 buffs	Bulls flats	No. 1 calfskins	No. 1 kips	Aver. price
1913......	$15.39	$14.43	$15.00	$13.54	$15.05	$15.60	$14.31	$12.73	$17.18	$16.74	$14.997
1912......	14.25	13.12	14.06	12.33	14.05	14.91	13.02	11.22	18.60	16.01	14.157
1911......	12.24	10.72	11.82	10.02	11.83	12.80	10.79	10.01	16.34	13.23	11.979
1910......	12.16	10.20	11.26	9.49	11.13	11.51	10.02	9.86	16.02	12.03	11.373
1905......	....	....	....	....	....	....	....	....	....	....	11.397
1900......	....	....	....	....	....	....	....	....	....	....	9.409
1896......	....	....	....	....	....	....	....	....	....	....	6.996

The total cattle slaughtered in the great markets of the United States was as follows:

LIVESTOCK SLAUGHTERED AT PRINCIPAL POINTS FOR YEARS 1913-1912

	Cattle		Calves		Sheep		Hogs	
	1913	1912	1913	1912	1913	1912	1913	1912
Chicago	1,530,625	1,681,136	356,921	482,932	4,453,106	4,880,873	5,898,292	5,608,315
Kansas City	1,129,199	1,060,262	106,256	152,397	1,600,993	1,611,651	2,295,497	2,423,742
Omaha *	512,040	577,138	......	......	1,598,023	1,572,177	2,161,771	2,479,370
St. Louis *	755,880	884,487	......	......	879,868	933,924	1,665,663	1,850,984
St. Joseph	267,871	297,877	23,084	33,986	632,868	561,089	1,797,267	1,802,601
Sioux City	140,020	154,293	17,899	24,334	197,717	171,516	1,080,420	1,175,496
St. Paul	117,128	123,118	92,971	107,442	189,367	197,340	936,944	755,532
Wichita *	67,248	70,473	......	......	11,155	20,631	439,819	298,119
Indianapolis	157,899	175,097	33,787	45,761	65,176	80,388	1,331,816	1,109,703
Oklahoma City	181,267	180,903	20,223	17,046	8,847	9,161	322,141	210,280
Fort Worth	415,829	356,967	141,899	179,399	242,212	188,281	343,720	339,307
Totals	5,275,006	5,561,751	792,990	1,043,297	9,879,332	10,227,081	18,273,350	18,053,449
Decrease	286,745		250,307		347,699			
Increase							219,901	

* Omaha, St. Louis, and Wichita count calves for cattle.

LEES, JAMES CAMERON A Scotch clergyman, died June 28, 1913. He was born in London in 1834, and was educated at Glasgow and Aberdeen Universities. At the age of twenty-one, he was licensed to preach, and in 1856 was presented with a parish in Rosshire. After a few years in this parish, he was transferred to the more important charge of Paisley Abbey. During his ministry at Paisley, he became very popular as a preacher. In 1877 he was called to the most important pastorate in the church of Scotland, that of St. Giles Cathedral, Edinburgh. He retired from the ministry in 1909. From 1881 to 1901 he was chaplain-in-ordinary to Queen Victoria, and from the latter date till his death to the king. His published writings include *History of the Abbey of Paisley* (1878); *History of St. Giles', Edinburgh* (1889); *Life and Conduct* (1893); and a *History of the County of Inverness* (1897).

LEEWARD ISLANDS. The most northerly group of the Lesser Antilles, certain islands of which unite to form a British colony, as detailed below (population, census of 1911):

	Sq. m.	Pop.	Capital
Antigua	170 1-4	32,265	St. John
Montserrat	32 1-2	12,196	Plymouth
St. Kitts & Nevis	150 1-3	43,303	Basseterre
Dominica	304 2-3	33,863	Roseau
Virgin Islands...	58	5,562	Road Town
Total	716	126,318	St. John

With Antiqua are included Barbuda (population 871) and Redonda (population 120), having a total of 62½ square miles. With St. Kitts (population 26,283) and Nevis (population 12,945) is included Anguilla (population 4075); area, 35 square miles. St. John is the colonial capital (7910 inhabitants).

Denominational education is the rule, except in Dominica; there were (in 1911-12) 121 aided and government schools, with a total attendance of 12,237. The climate is reasonably healthful; mean temperature, about 80°. There are no railways and no internal telegraphs;

cables connect the islands with other islands and with Europe and North America. Sugar, long the staple product, is in some of the islands being replaced by cotton, etc. Comparative trade and finance statistics are given in the table below, revenue and expenditure being exclusive of government grants:

	1908-9	1909-10	1910-11	1911-12
Imports	£567,593	£485,393	£567,817	£713,414
Exports	536,312	441,728	558,165	566,754
Revenue	154,333	149,670	164,375	174,818
Expenditure..	146,216	149,906	159,263	158,924

For detailed accounts of the five presidencies, see separate articles. The governor for the colony in 1913 was Sir H. Hesketh-Bell (appointed 1912).

LEGGE, AUGUSTUS. A Church of England bishop, died March 15, 1913. Born in 1839, sixth son of the Earl of Dartmouth, he was educated at Eton College and Christ Church, Oxford, and in 1864 was ordained to the Church of England ministry. After serving as curate in several country parishes he removed in 1866 to London and in the following year was made rector of the parish of St. Bartholomew. Here he remained for twelve years, and then became chaplain to the Bishop of Rochester, and was made honorary canon in Rochester Cathedral. He was appointed vicar of Lewisham in 1879, and in 1891 was made by Lord Salisbury, Bishop of Litchfield. He was twice president of the Church Congress.

LEGISLATION IN THE UNITED STATES—1913. The principal laws passed by Congress in 1913 are noted in the article CONGRESS. The following is a résumé of the more important laws passed by the State legislatures in 1913. Where the legislation is treated more fully under other articles, it is so indicated.

In the article ELECTORAL REFORM, will be found a summary of the many important measures passed by State legislatures in 1913 affecting this subject. These include laws relating to the initiative and referenduum, the recall, primary election laws, corrupt practices act, and laws against lobbying.

WOMAN SUFFRAGE. Constitutional amendments providing for woman suffrage were adopted at the November election of 1912 by Arizona, Kansas, and Oregon, making a total of nine States in which women are now granted the right of suffrage. The legislatures of these States in 1913, passed measures making these amendments effective. Proposed constitutional amendments providing for woman suffrage were submitted to the vote of the people by the legislature of 1913, by Iowa, Montana, Nevada, North Dakota, and Pennsylvania. The Illinois legislature passed an act giving women the right to vote for presidential electors, university trustees and various county, township, and municipal officers. (See ILLINOIS; WOMAN SUFFRAGE.)

MUNICIPAL GOVERNMENT. Laws providing for a commission form of government for municipalities were enacted in Arkansas, Idaho, Kansas, New Mexico, Ohio, and Texas. These were either in the way of original legislation or by extending or supplementing existing laws. (See MUNICIPAL GOVERNMENT.)

PUBLIC UTILITIES. Laws providing for the regulation of public utilities by commissions established for that purpose, became effective in 1913 in Colorado, District of Columbia, Hawaii, Idaho, Illinois, Indiana, Maine, Montana, Missouri, Ohio, Oregon, Pennsylvania, and West Virginia. In New Hampshire the powers of the existing public service commissions were extended to the regulation of railroad rates. Legislation on this subject was introduced in a number of States, but failed of enactment. At its regular session the legislature of Minnesota passed a law providing for a commission to investigate the subject.

RAILROAD LEGISLATION. For notes on legislation on this subject, see the article RAILWAYS.

LABOR LEGISLATION. Legislation on this subject, which includes laws for employers' liability or workmen's compensation laws, laws regulating the hours of labor for women and minors, uniform child labor laws, eight-hour laws for public works, laws providing for one day's rest out of seven, measures providing for minimum wage laws relating to injunctions and labor disputes and to the arbitration of labor disputes, will be found treated fully in the article LABOR LEGISLATION. See also the articles entitled CHILD LABOR, FACTORY INVESTIGATION COMMISSION, MINIMUM WAGE, and WORKMEN'S COMPENSATION.

PUBLIC HEALTH AND MORALS. In California, Minnesota, Oregon, Pennsylvania, Washington, and Wisconsin, the legislatures enacted laws providing for the abatement of disorderly houses. These were in the main, patterned after the Iowa law on the subject.

Statutes relating to white slavery were enacted in Arkansas, Kansas, Missouri, New Mexico, and Idaho, patterned generally after the Mann act. The legislatures of Ohio and Pennsylvania created State boards of censorship for motion pictures. The legislatures of Indiana, Kansas, and Minnesota provided tuberculosis hospitals, and those of California, New Hampshire, Oregon, Porto Rico, Texas, and Washington passed laws of various sorts aimed at the suppression of tuberculosis. Laws pressing restrictions upon tenement houses were passed in California, Indiana, Massachusetts, and New York. In New York, the existing laws relating to employments which may be carried on in tenement houses, were extended and supplemented. Laws dealing with pure food in some phase were passed in Arizona, California, Minnesota, Massachusetts, Nevada, and Pennsylvania.

Laws providing for the sterilization of criminals, degenerates, defectives, etc., were passed by the legislatures of North Dakota and Oregon. The legislatures of North Dakota and Oregon passed laws requiring a presentation of a physician's certificate of health, as a prerequisite for obtaining a license to marry. The legislature of Massachusetts enacted a uniform marriage law. (For laws relating to mothers' pensions, see MOTHERS' PENSIONS; for those relating to prison reform, see PENOLOGY; for legislation affecting the sale of liquor, see LIQUOR REGULATION; and for measures relating to juvenile courts, see the article JUVENILE COURTS.)

EDUCATION. The legislatures of Indiana, New York, and Pennsylvania passed laws providing for vocational training in public schools. In New Hampshire and New York, provision was made for the medical inspection of pupils in public schools, and in Massachusetts, North Dakota, Vermont, and Washington, teachers' insurance for retirement funds was provided.

MISCELLANEOUS LEGISLATION. In New Hampshire, Ohio, and Washington, State departments of agriculture were established. A State civil service law was passed in California, and legislatures of Colorado and Kansas provided a civic service for certain cities.

The subject of good roads for State highway systems was legislated upon in Idaho, Iowa, Minnesota, Nevada, New Jersey, Washington, and West Virginia.

Laws regulating the conservation of natural resources were enacted in California, Massachusetts, and New York.

Laws relating to weights and measures were passed by the legislatures of California, Massachusetts, Minnesota, and New Mexico. The legislative reference bureaus for the purpose of advising and assisting legislation were established in California, New Hampshire, and Ohio.

Laws relating to the simplification of legal practices were passed by the legislatures of Colorado, Indiana, Massachusetts, North Carolina, New York, North Dakota, Minnesota, and Oregon. In Minnesota it was provided that a jury may render a verdict in civil cases on a five-sixth's vote after twelve hours' deliberation. In Ohio it was provided that a jury in civil cases may return a verdict on a three-quarters' vote of the jury.

The legislatures of California, Ohio, and Oregon sent delegates to Europe to study rural credits in coöperation with the Southern Commercial Congress. The legislature of Idaho, by concurrent resolution, asked for federal legislation on the subject, and the legislature of Kansas requested the Federal government to loan the national funds to resident landowners at a low rate of interest. The legislatures of Indiana and Texas passed statutes providing for the incorporation of rural credit unions or associations.

The legislatures of New Hampshire and Porto Rico passed a statute providing for the registration of foreign corporations. The New Jersey legislature enacted a measure prohibiting corporations from acquiring the stock or other securities of other corporations.

For laws relating to trusts, competition, and discrimination, etc., see article TRUSTS.

In the legislatures of Arkansas, Indiana, Minnesota, and Vermont, laws were passed providing for uniform negotiable instruments, and in Minnesota, Nevada, Oregon, Vermont, and Washington, uniform warehouse receipts acts were passed.

Laws regulating the practices of loan sharks were passed in Colorado, the District of Columbia, Indiana, Minnesota, Montana, Missouri, New York, and Pennsylvania.

The legislatures of Arkansas, Pennsylvania, and Vermont, changed the form of capital punishment from hanging to electrocution. In Washington, the death penalty was abolished.

So-called "blue sky" laws were passed in Arkansas, California, Florida, Idaho, Iowa, Kansas, Maine, Michigan, Missouri, Montana, Nebraska, North Carolina, North Dakota, Ohio, Oregon, South Dakota, Vermont, and West Virginia. In general, these follow the Kansas statute. (See FINANCIAL REVIEW.)

The legislature of Minnesota also passed a blue sky act, which applies only to the stock or securities of an insurance corporation or association. The New York legislature passed laws regulating the dealing in securities by brokers and others, and prescribed penalties for various methods for deceiving the public in the matter of the value of stocks or other securities.

The legislatures of Ohio and California passed laws providing for the use of school houses and grounds and other public buildings for the entertainment and education of the citizens. This movement has aroused interest throughout the country. In some cities the plan has been put into operation without much legislation, except by way of municipal ordinance. The idea is to utilize school buildings and grounds during the hours and periods when they are not used for school purposes, for the education and entertainment of citizens generally.

The legislatures of Arizona, Indiana, Nevada, North Dakota, and West Virginia, enacted inheritance tax laws, while the Kansas legislature repealed the existing law.

The loan land laws passed by the legislatures of California and Arizona are discussed under those States. In Idaho and New York existing restrictions against the holding of property by aliens were repealed, and in Washington a provision was made for the submission of a constitutional amendment providing for the removal of certain such restrictions as to lands and municipalities.

The legislature of Massachusetts passed an act for the licensing of aviators, the inspection of aeroplanes, and the "law of the road" in flight, etc.

LEHIGH UNIVERSITY. An institution of higher learning at South Bethlehem, Pa., founded in 1866. The college includes departments of arts and science, civil engineering, mechanical engineering, chemistry, etc. The enrollment in all departments in the autumn of 1913 was 675. The faculty numbered 72. There were no noteworthy changes in the faculty during the year. The university received a gift of $100,000 for a gymnasium and swimming-pool from Charles L. Taylor of Pittsburgh. In the autumn of 1913 a course in physical education was added to the curriculum. Every student in college is obliged to take three hours of exercise each week, receiving one unit of scholastic credit therefore. The new stadium and a separate athletic field for non-varsity men was under construction in 1913 and will be completed in 1914. The productive funds of the university amount to about $1,200,000. The total income in 1912-13 was $260,638. The library contains about 130,000 volumes. The president is Henry Sturgis Brinker, E.M., LL.D.

LELAND STANFORD JUNIOR UNIVERSITY. An institution for higher education at Stanford University, Cal., founded in 1891. The enrollment in all the departments in the autumn of 1913 was 1755. The faculty numbered 184. The most notable event in the history of the university during the year was the retirement of David Starr Jordan, LL.D., as president, and the appointment of John Casper Branner to succeed him. Dr. Jordan was made chancellor of the university. The library contains about 217,000 volumes.

LEMON-CURING. See HORTICULTURE, under section so entitled.

LEPROSY. According to an investigation made by Dr. Rupert Blue, surgeon-general of the United States public health service, there were up to January 1, 1913, 146 lepers in the United States, 41 of whom had been discovered during the preceding year. Dr. Blue did not believe these represented the entire number of cases, as in many States the disease was not notifiable, and in others a requirement of notification was not enforced. There were also shown to be 696 cases in Hawaii, 28 in Porto Rico, and 2754 in the Philippine Islands, making a grand total of 3624 officially reported in the United States and its possessions. The previous census taken in 1909 showed that there were then 139 cases of leprosy in 18 States and the District of Columbia, 764 in Hawaii, 17 in Porto Rico, 2330 in the Philippine Islands, and 7 in the Canal Zone. Another Father Damien has developed in the person of Dr. George Turner, who was recently knighted by the King of England. Sir George Turner is one of the greatest authorities on the subject of leprosy, having given up a great part of his life to service in the leper hospital at Pretoria, in South Africa, finally contracting the disease himself. On his retirement through reaching the age limit, Dr. Turner pursued his investigations in England, continuing his work in spite of ever-increasing pain, disfigurement, and constant seclusion.

LEUKEMIA. See Benzol.

LEWIS, James Hamilton. An American public official, elected in 1913 United States senator (Democratic) from Illinois. (See Illinois.) He was born in Danville, Virginia, in 1866, but later removed to Augusta, Ga. Educated at Houghton College and the University of Virginia, he studied law in Savannah, and in 1884 was admitted to the bar. Soon after he removed to Seattle, Wash., where he was elected to the Territorial Senate. In 1890 he declined the nomination for Congress, and in 1892 was unsuccessful candidate for governor. He was the unsuccessful nominee for United States senator in 1894, and in the Democratic national convention in 1896 was the candidate of the Washington delegates for the vice-presidency. In 1897 he was elected to the Fifty-fifth Congress, and during his services was author of the resolution for the recognition of Cuban independence. In the Democratic national convention in 1900 he was candidate for the vice-presidency. During the Spanish-American War he served on the staff of General F. D. Grant. He removed to Chicago in 1903 and two years later became corporation counsel of the city. In 1908 he was the Democratic candidate for governor of the State.

LIBERIA. An independent negro republic on the west coast of Africa, founded in 1822 by American philanthropists for the settlement of freed slaves. The area is variously estimated at from 35,000 to 41,000 square miles and having a population between one and two millions, including about 10,000 Americo-Liberians. The indigenous negroes, with the exception of the Mandingo tribe (Mohammedan), are mainly pagans, and there are said to be cannibals in the interior. The development of the country is hindered by lack of roads, impassible forests, and by laws preventing the acquisition of land by any but Liberians or (until 1909) trading by foreigners in any part of the country excepting at official ports of entry. A concession obtained by Lever Bros. Ltd., embracing 12,000 square miles and intended to open up the country, was rejected by the senate. The mineral wealth is unexploited except for the operations of a native company. The products for export are palm oil, coffee, rubber, and ivory. Cotton is indigenous but little cultivated. Imports, 1909, $1,065,200 (1911 estimate, $1,025,000); export, $970,500 ($975,000)—palm oil, $289,075; piassava, $184,937; palm kernels, $201,201; coffee, $134,238; rubber, $40,698; ivory, $21,346.

Seventy per cent. of the trade is with Germany. In 1911 vessels entered to the number of 1056, of 2,077,000 tons. Monrovia (6000 inhabitants) is (since 1910) a cable station on the route from Germany to Brazil. The government of French west Africa obtained permission to establish a wireless station there. The revenue was estimated for 1913 at $450,841. The debt stood in 1912 at $1,627,418, of which foreign debt, $1,040,378; internal, $587,040. A president (1912-16, Daniel Edward Howard) elected for four years is the executive. The international financial controller in 1913 was an American, R. P. Clark; with Germany represented by G. Lange, the United Kingdom by R. Sharpe, and France by F. Wolff.

History. In November, 1912, the Liberian government found itself involved in difficulties with the German government by reason of insults offered by natives to German merchants and officers. The arrival of the German gunboat *Panther*, reinforced later by another gunboat and a cruiser, secured apologies from the Liberian government, but in March, 1913, the little state retaliated by offering to an English firm a concession to exploit about 12,000 square miles of the most valuable land in the republic.

LIBRARY ASSOCIATION, American. A soicety organized in 1876 and incorporated in 1879 to develop the public library in its bearing on American education and by coöperation to increase the efficiency of library administration. The present membership is about 2700. The association holds annual meetings. The thirty-fifth annual conference was held at Kaaterskill, in the Catskill Mountains, New York, June 23 to 28, 1913, at which there was an attendance of 892. The general theme was specialization in library work, the various papers and addresses emphasizing the services libraries are performing in various specialized fields. The president, Henry E. Legler, librarian of the Chicago public library, in the presidential address discussed "The World of Print and the World's Work." Other topics developing the general theme were: Work with foreigners and colored races; library influences at home, in the shop and on the farm; the education of children and the conservation of their interests; the enlarging scope of library work in the high and normal schools; the library's service to business and legislation. Among subjects considered at section meetings were: Bibliographic instruction in colleges and universities; the librarian's opportunity in vocational guidance; the care of archives material; art in the college library; and the cost of library administration. The committee, which for the past two years has been studying the relations between the public library and the municipality, rendered its final report, which embodied a statement of the things that a library law or charter section should aim to do and suggested a form for the library sections of a city charter. Committees are now engaged in studying the cost and methods of cataloging libraries; ventilating and lighting of library buildings; drawing up a code for library classifiers; and investigating insurance rates for libraries. The constitution was amended to permit State library associations to affiliate with the American Library Association upon certain specified conditions, and twelve associations have thus far affiliated.

The headquarters of the association are in Chicago, in the public library building. This is the distributing centre for all the association's publications, of which there are now about seventy in print. The office serves as a bureau of information concerning library work in the United States and Canada. The official organ is the *Bulletin of the American Library Association*, published bi-monthly and distributed free to members. One number consists of the proceedings of the annual conference and one constitutes the handbook. The association publishes a monthly magazine, the *Booklist*, an annotated guide for the selection and purchase of new books. The association has been instrumental in establishing library organizations in forty States, besides many local clubs in cities and districts. Affiliated with it are four national organizations of kindred purpose: National Association of State Libraries (president, James I. Wyer, Jr., New York State Library, Albany, N. Y.; secretary, C. B. Lester, Wisconsin Legislative Reference Bureau, Madison, Wis.); League of Library Commissions (president, Elizabeth B. Wales, Missouri Library Commission, Jefferson City, Mo.; secretary, Mrs. M. C. Budlong, North Dakota Public Library Commission, Bismarck, N. D.); American Association of Law Libraries (president, F. O. Poole, Association of the Bar Library, New York; secretary, Gertrude E. Woodard, University of Michigan Law Library, Ann Arbor, Mich.); and Special Libraries Association (president, D. N. Handy, Insurance Association of Boston, Boston, Mass.; secretary, Guy E. Marion, 93 Broad Street, Boston, Mass.). The National Education Association has a library section (president, W. H. Kerr, Kansas State Normal School Library, Emporia, Kan.; secretary, Harriet A. Wood, Library Association, Portland, Ore.) which, although not officially affiliated, is in close coöperation with the American Library Association.

An important activity of the association is a publishing board, which operates under a gift to the association of $100,000 made in 1902 by Andrew Carnegie. The income from this fund is used in the compilation of indexes, bibliographies, reference helps, and literature for the promotion of library extension and the selection of books. Among its publications are an important bibliography of American history, a portrait index containing 120,000 references, the A. L. A. catalogue of 8000 volumes and the supplement to the above of 3000 volumes, a guide to reference books and a list of subject headings for a dictionary catalogue. A manual of library economy is being prepared, twenty chapters of which, each forming a separate pamphlet, have already been printed. The officers for the year 1913-14 are as follows: President, E. H. Anderson, director New York Public Library; first vice-president, H. C. Wellman, librarian Springfield (Mass.) City Library; second vice-president, Gratia A. Countryman, librarian Minneapolis Public Library; treasurer, Carl B. Roden, assistant librarian Chicago Public Library; secretary and executive officer, George B. Utley, 78 East Washington Street, Chicago. The thirty-sixth annual meeting of the association will be held at Washington, D. C., May 25 to 29, 1914.

See also Library Progress.

LIBRARY BUILDINGS. See heading so entitled under Architecture and Library Progress.

LIBRARY OF CONGRESS. At the end of the fiscal year 1913, there were in the library of Congress 2,128,255 books, 135,223 copies of charts, 630,799 volumes and pieces of music, and 360,494 prints. The net accession during the year included 115,862 books, 39,167 volumes and pieces of music, 10,749 prints. The library also contains a large number of manuscripts, but an accurate statement of the number is not possible. During the year there were acquired by purchase and transfer, the Hoe collection, and the libraries of the national monetary commission gathered by the tariff board. While no large groups of printed books were presented during the year, there was an aggregate of 11,256 pieces received by private gift.

Many important accessions were made in the division of manuscripts. These include the diary of John Fell, which adds to the value of the papers of the Continental Congress; the logs and journals of Admiral Sir George Cockburn, which throw much light on his movements in American waters and supplement the large collection of his papers acquired in 1911; the papers of James Murray Mason, which make valuable additions to the diplomatic history of the Confederacy; the papers of Nicholas Biddle, which complete the story of the contest between Jackson and the second bank of the United States; and the records of the American Colonization Society, already developed in part by the Thornton papers. During the year, three volumes of the journal of the Continental Congress were issued. These bring the records up to 1782. The copy for that year and for 1783 was well on the course of editorial preparation. The library lost two important members of its staff during the year: Louis C. Solymon and Steingrinur Stefansson, who were both expert linguists. The librarian is Herbert Putnam, and the chief of the division of manuscripts is Gaillard Hunt.

LIBRARY PROGRESS. The year 1913 in American libraries was one of steady growth marked by no extraordinary events. The usual meeting of the American Library Association was held in June at Kaaterskill, N. Y. The proceedings have been published in the Bulletin of the Association. The various sections of the association (catalogue, college and reference, children's work, library training, agricultural libraries, etc.) and the affiliated bodies (Special Libraries Association, League of Library Commissions, Association of Law Libraries, Bibliographical Society of America, American Library Institute) absorbed the greater portion of the programme, showing that specialization in the numerous forms of library work has become a permanent feature both of these meetings and of the work itself. The association maintains headquarters at 78 East Washington Street, Chicago. It has a permanent secretary and a publishing board. During the year the latter issued (among other books): K. T. Moody, *Index to Library Reports;* J. Kudlicka, *List of Polish Books;* F. K. Walters, *Periodicals for the Small Library.* The board also issues monthly the *A. L. A. Booklist,* a selected and annotated list of current books suitable for a public library of moderate size.

LIBRARY LEGISLATION. Thirty-seven States now have library commissions or bodies with similar duties acting under slightly different names. South Dakota and Arkansas created new commissions during the year, the latter by direct action of the governor without any legislative sanction. Ten of the States gave their commissions larger appropriations than in previous years, while Kansas and New York decreased the allotment, the latter by $15,000. South Dakota passed a general library law, permitting a vote, on petition of 5 per cent. of the voters of any town, on the proposition to establish a library. A tax limit of two mills on the dollar is set, but below that sum the library trustees may levy for the support of the institution without reference to any other local body. A new law in Iowa fixes the tax limit at five mills for maintenance and at five mills also for a building and site, without regard to the size of the town or city. Kansas, by a new law, sets the tax limit at four-tenths of a mill, and in cities of 40,000 it may not exceed one-quarter of a mill. Minnesota raised the limit from two to three mills, and made provision for the support of libraries from country districts as well as cities. Attempts to secure a new library law failed in several States.

Iowa, Minnesota, Washington, and Texas made legal provision for the extension of the service of city libraries to the rural districts surrounding them, the first two by contract between public libraries and neighboring communities, the two latter by establishing a system of county libraries.

California passed a new law organizing its State library on a liberal basis of State support, and Indiana one changing the general scheme and adding a department of history and archives.

Legislative reference libraries have been created in Illinois, Ohio, and New Hampshire; and in Indiana an independent "bureau of legislative and administrative information" has been established to take the place of a former department of the State library.

Nebraska authorized the establishment on a coöperative basis of a retirement fund for librarians who have served thirty years or more.

LIBRARY APPOINTMENTS. Edwin H. Anderson was made director of the New York Public Library on the death of John Shaw Billings in April; W. Dawson Johnston became librarian of the St. Paul (Minn.) Public Library (in December); J. Adam Strohm succeeded Henry M. Utley (retired) as head of the Detroit Public Library (April); Prof. Henry Preserved Smith was appointed librarian of Union Theological Seminary, New York City (July); Alice S. Tyler became director of the Western Reserve University Library School (September).

LIBRARY LITERATURE. *Industrial Art Index,* a new bi-monthly periodical, issued by the H. W. Wilson Co., of Minneapolis on the line of their *Reader's Guide* and *Cumulative Book Index;* Melvil Dewey, *Decimal Classification* (8th ed., Lake Placid, N. Y., 1913, but slightly altered from the 7th ed., 1912); Library of Congress, *Early books on music* (before 1800); *Check list of American eighteenth century newspapers; Bibliography of international law and continental law.* In addition numerous select lists of books on topics of current interest were issued by this library: Frederick C. Hicks, *Aids to the study and use of law books* (N. Y., 1913); Samuel Swett Green, *Public Library movement in the United States 1853-1893* (Boston, 1913); Wisconsin Free Library Commission, *New types of small library buildings* (Madison, 1913); Martha Thorne Wheeler, *Indexing: principles, rules and examples* (2d ed., Albany, N. Y., State Library School).

LIBRARY BUILDINGS. No large new buildings were completed during the year, but moderate sized ones of peculiar merit were opened at Portland, Ore., and Somerville, Mass. Several new branch libraries were finished in Denver, which show originality both in the arrangement and in architectural treatment.

LIBRARY TRAINING SCHOOLS. The New York Public Library School added a second year to its course of study. The University of California was added to the list of institutions holding summer courses in library methods, while Repon College (Wisconsin) inaugurated courses in library economy. The Training School for Children's Librarians conducted by the Carnegie Library of Pittsburgh has now established a course of two years' length. The California State Library opened a new library school on January 1, 1914.

LARGE AMERICAN LIBRARIES. The United States has four libraries each owning over a million volumes (Library of Congress, 2,120,000; Harvard University, 1,665,000; New York Public Library, 1,600,000; Boston Public Library, 1,050,000), while two others (Yale University, 900,000, and Brooklyn Public Library, 735,000) approach a million books. There are over sixty libraries which possess more than 100,000 volumes each. The total number of volumes in regularly established libraries is estimated as over 75,000,000.

LIBRARY TRAINING SCHOOLS. See LIBRARY PROGRESS under heading so entitled.

LIBYA. A French possession on the Mediterranean coast of Africa, comprising Tripoli and Cyrenaica. See ITALY, *History;* and TRIPOLI.

LIFE EXPECTANCY. See VITAL STATISTICS.

LIFE INSURANCE. See INSURANCE.

LIFE-TABLE. See VITAL STATISTICS.

LIGHT. See ELECTRIC LIGHTING AND PHOTOGRAPHY.

LIGHTHOUSES. The reorganization of the U. S. lighthouse service under the provision of the act of Congress approved June 17, 1910, and in progress during 1912 was entirely completed by 1913. All of the lighthouse districts, with the exception of the three river districts, had been placed in charge of civilian inspectors, the army officers detailed as engineers and the navy officers serving as inspectors being replaced by civilian employes of the Bureau of Lighthouses.

The general organization of the lighthouse service under the new system was as follows:

The executive office in Washington was under the commissioner of lighthouses and the deputy commissioner and here were maintained an engineering construction division, under the chief constructing engineer; a naval construction division, under the superintendent of naval construction; a hydrographic division, under an assistant engineer; and the general office force, under the chief clerk.

Outside of Washington the service was divided into nineteen lighthouse districts, each of which was under the charge of a lighthouse inspector. In each district there was a central office, and also one or more lighthouse depots for storing and distributing supplies and apparatus. Each district was provided with one or more lighthouse tenders for the purpose of distributing supplies to the various stations and light vessels and for transportation of materials for construction or repair, for the placing and care of the buoyage system in the district, and for transporting the officers of the service on official inspection and on other official duty.

In addition to the several district depots, there was maintained in the third lighthouse district, on Staten Island, New York Harbor, a general lighthouse depot, where many of the supplies for the whole service were purchased and stored previous to distribution, where special apparatus was manufactured or repaired, and where also there was carried on various technical work in the way of testing apparatus and supplies and designing or improving apparatus.

The accompanying table gives a summary of the aids to navigation in the United States, established and discontinued during the fiscal year by the Bureau of Lighthouses, and also the net increase, and the number in commission at the end of the fiscal years 1912 and 1913:

	1913			Total number June 30—	
	Established	Discontinued	Increase	1912 a	1913
Lighted aids:					
Lights (other than minor lights).	75	19	56	1,475	1,531
Minor lights......	331	217	114	2,552	2,666
Light-vessel stations	3	1	2	51	53
Gas buoys	75	33	42	346	388
Float lights.......	14	5	9	92	101
Total	498	275	223	4,516	4,739
Unlighted aids:					
Fog signals.......	10	0	10	510	520
Submarine signals	3	0	3	43	46
Whistling buoys, unlighted	3	3	0	84	84
Bell buoys, unl't'd	19	8	11	205	216
Other buoys......	505	332	173	6,001	6,174
Day beacons......	345	174	171	1,484	1,655
Total	885	517	368	8,327	8,695
Grand total..	1,383	792	591	a12,843	13,434

a Differences from statistics published in 1912 report are due to minor discrepancies in previous count.

Other steps were being taken to increase safety of navigation on the coast waters of Alaska by increasing the number of aids to navigation. The total number of lights, buoys, and daymarks, in commission at the close of the fiscal year ended June 30, 1913, was 279, including 93 lights, representing an increase of 56 lights since June 30, 1910, or 150 per cent. The accompanying table, which gives the total number of aids to navigation on June 30 of each year named, illustrates the progress in establishing aids in the Territory:

Aids	1910	1911	1912	1913
Lights	37	71	85	93
Fog signals	9	10	10	10
Buoys	84	105	132	136
Daymarks	30	29	38	40
Total	160	215	265	279

LIME. The total production of lime in the United States in 1912 was 3,539,462 short tons, valued at $13,970,114; compared with 3,392,915 short tons, valued at $13,689,054 in 1911, an increase of 136,537 short tons in quantity and $281,060 in value. The average price per ton in 1912 was $3.96, compared with $4.03 in 1911. The decline in price is apparently due to the concentration of the industry into larger units, with the consequent lowering of cost of manufacture. The total number of lime-manufacturing plants operating in 1912 was 1017, as compared with 1139 in 1911. The five leading States in 1912 in order of production were Pennsylvania, Ohio, Wisconsin, West Virginia, and Maine. Maine supplanted Missouri which, in 1911, occupied first place. In value of production, however, Maine ranked seventh while Missouri ranked sixth. Pennsylvania has long held first rank in both quantity and value of lime produced. In 1912, the total production in that State was 189,159 tons, valued at $2,679,420. This was an increase of 7436 short tons in quantity and a decrease of $8954 in value.

The imports of lime into the United States in 1912 were 4268 short tons, valued at $48,153. The exports were 260,669 barrels, valued at $199,515.

LIND, John. See Mexico, *History*.

LINDQUIST BILL. See Boots and Shoes.

LINDSAY, Sir Coutts. An English artist, and patron of art, died May 7, 1913. He was born in 1824 and in 1837 succeeded his maternal grandfather in the baronetcy. His early years were spent as a soldier but his love of art led him to the practice of that profession, and between 1862 and 1875 he exhibited ten pictures at the Royal Academy. These were mainly portraits. For the founding of the Grosvenor gallery he was chiefly responsible. It was designed, in the first place, not as rival to the Royal Academy, but as a supplement to it, and, secondly, for schools of painting which were out of sympathy with the aims and organization of the Academy. For ten years he carried on this enterprise with the assistance of others. He then attempted to enlarge his operations and he made uses of the gallery which were incompatible with the dignity of art, and as a result artists who had hitherto supported the gallery severed their connection with it and founded a new gallery. To this some of the most important and characteristic exhibitors of the Grosvenor gallery went over. It continued in existence for a time, but its important days were over.

LIPTON, Sir Thomas. See Yachting.

LIQUOR REGULATION. The legislatures of most of the States were in session during 1913, and the greater number of them passed measures of some character for the regulation of liquor traffic.

In Arkansas a prohibition law passed by the legislature, known as the "Going bill," had the practical effect of placing the entire State under prohibition on January 1, 1914. This act makes it unlawful for any county, town, or city council to issue a license to sell intoxicating liquors, except in cases where such a license is asked for by a petition signed by a majority of white adult population within the incorporated limits of the town or city where the license is to be used. The law further provides that in order to secure a license in this manner the county must have voted for license in the last general election on that question. There were 12 cities in the State with a population of 5000 or more under no-license in 1913. These included Little Rock, Fort Smith, Pine Bluff, Argenta, and Hot Springs.

The only important measure passed by the California legislature in 1913 was a State law which requires saloons to close from two to six o'clock A.M. In northern and central California, consisting of 48 counties, 110 supervisorial districts were "dry" in 1913, and 17 were "wet," the "dry" territory being equal to about 22 whole counties. In this section of the State there were 43 "dry" incorporated cities and towns and 103 "wet" incorporated cities and towns. Of the cities and towns in the 10 counties of southern California, 183 were "dry" in 1913 and only 28 "wet."

In Colorado many important events connected with liquor regulation occurred in 1913. A series of decisions handed down by the State Supreme Court will result in the abolition in the city of Denver of about 150 saloons and drinking places. A campaign for State-wide prohibition will take place in 1914. This will be carried on by the Anti-Saloon League. The cities of Colorado Springs, Pagosa Springs, and Gunnison voted for no-license in 1913. About 54 per cent. of the population of the State was under no-license.

The General Assembly of 1913 in Connecticut added a number of anti-liquor provisions to the present laws of the State. Among these was one prohibiting the sale of liquor by druggists, except on prescription during the hours or days when saloons are closed. Another prohibits the employment of women in places where liquors are sold. There were in 1913, 87 towns which had no-license, and 81 which had license. One city of the 19 in the State was under no-license. A bill for a State farm for drunkards was passed by both houses of the legislature, but was vetoed by the governor.

In Georgia, the prohibition forces succeeded in electing a dry legislature in 1913. Twenty-four cities in the State, with a population of 5000 or more, were under no-license in 1913. These included Atlanta, Savannah, Augusta, Columbus, and Macon.

In Idaho, 21 of the 33 counties were dry in 1913. It was estimated at the end of the year that there were only about 195 saloons remaining in the State. The legislature of 1913 passed several stringent measures relating to the sale of liquor by drug stores. A campaign is under way to bring about State-wide prohibition in 1915. Four cities with a population of 5000 or more, were under no-license. These are Lewiston, Pacatello, Twin Falls, and Idaho Falls.

Attempts were made to repeal the present local option law in the Illinois legislature of 1913, but this failed by 22 votes. A four-mile dry zone bill was passed, making it impossible for saloons to be located within four miles of the State University at Champaign and Urbana. In the autumn elections 22 out of 28 places voting, abolished saloons. There were eight cities with a population of 5000 or over which in 1913 were under no-license. These included Evanston, Rockford, Champaign, Jacksonville, Oak Park, Paris, Urbana, and Zion City.

The legislature in Indiana passed no measures of importance affecting liquor regulation. Of the 94 cities in the State, 30 were dry in 1913, and of the 360 incorporated towns, at least 300 were without saloons.

There were no important changes made in the liquor laws of Iowa, but as a result of the decision of the Supreme Court, the city of Des Moines became "dry." A rehearing of the case was asked for, and a stay of execution was granted. In 1911 10 towns with a population of 5000 or more were under no-license. These included Ottumwa, Waterloo, Muscatine, and Mason City.

In Kentucky there were five local option elections during the year. In each of these, no-license was successful. At the close of the year there were 99 dry counties and 21 wet counties in the State. Four cities with a population of 5000 or more were under no-license. These were Danville, Mayfield, Richmond, and Bowling Green.

In Maine, as a result of complaints made to Governor Haines that the liquor laws were being nullified, sheriffs were removed in several counties. There was no effort to repeal the prohibition law in the legislature of 1913.

Maryland has no general local option law, but a number of counties have been permitted to vote on the liquor question by special acts passed by the legislature. As a result of these special elections, 10 of the 23 counties of the State were without saloons in 1913. About two-thirds of the State's area is "dry," and about one-third of the population of the State lives in "dry" territory. The city of Baltimore has a number of "dry" residence districts which have been made so by special legislation.

In Massachusetts, of the 33 cities, 19 were under license and 14 were under no-license in 1913. Of the 320 towns, 73 were under license and 247 were under no-license. During the year 13 towns changed to license and 11 changed to no-license. The legislature of 1913 passed no important measures relating to the liquor traffic. Several measures made at liberalizing the law were defeated.

The legislature of Michigan in 1913, enacted several important measures. Among these was the Lee law, prohibiting drinking on trains other than on dining cars, and prohibiting drunken men from riding on trains. The most important measure enacted was known as the Pray law. This prohibited the shipment of liquor designed for illegal purposes into "dry" territory. It makes it illegal for any public carrier or any other person to consign, carry or ship liquor to anyone—other than a druggist—or any "dry" community in the State. As a result of this law 71 clubs closed their doors in one month. Fifteen cities in the State with a population of 5000 or more were under no-license in 1913. These included Flint, Adrian, Holland, Owosso, and Cadillac.

In 1913 in Minnesota, there was local option for villages and for about 14 per cent. of the cities. There were three dry counties in the

State and three counties with only one saloon in each.

Mississippi is one of the most radical of the States in regulating the liquor traffic. Important laws passed by the legislatures of 1912 resulted in practically prohibiting the sale of liquor in the State. The legislature of 1914 will be asked to pass two more laws, one of which will give to the governor power to remove derelict officials. The other will make the Webb law enforceable by prohibiting the shipment of liquors into the State. There were 15 cities with a population of 5000 or more, which were under no-license in 1913. These included Jackson, Vicksburg, Natchez, Meridian and Hattiesburg.

In Missouri there were no measures of importance passed by the legislature of 1913 which affected liquor regulation. There were five cities in the State with a population of 5000 or over which are under no-license. These are Carthage, Columbia, Kirksville, Webb City, and Webster Grove. Several local option elections were held during the year. Most of these voted for no-license.

Under the local option law, Nebraska was in 1913 practically without saloons. There were in the State 41 cities and towns, ranging in population from 1000 to 5000, which were "dry." The city of York with a population of 6235 was also "dry." All territory in the State within two miles of an incorporated town or village is under absolute prohibition.

In New Jersey eight cities with a population of 5000 or more were under no-license in 1913. These included Asbury Park, Millville, Bridgeton, Collingswood, Rutherford, Haddonfield, Ocean Grove, and Vineland. There were 81 municipalities and ten townships without license, chiefly owing to remonstrances made by citizens to the licensing authority. The State has no local option law. There are, however, strong laws for regulating liquor traffic.

In New Mexico, under the present law, no saloons are allowed to be licensed "except within the limits of the city, town, or village containing at least 100 inhabitants." Strong effort was made to secure through the legislature of 1913 submission of a constitutional prohibition amendment. This passed the lower house by 30 to 6, and failed in the Senate by only 2 votes. The county unit prohibition bill also passed the House by about the same vote, but did not pass the Senate.

In New York only one county, Yates, was under no-license in 1913. There were in the State 933 townships which under the Raines law were entitled to local option. Several bills were introduced in the legislature which were designed to liberalize liquor laws of the State, but all failed passage.

The general assembly of North Carolina in 1913 passed a strong search and seizure law, making over one gallon of liquor in anyone's possession evidence of guilt. The act makes it unlawful for anyone "to engage in the business of selling, exchanging, bartering, or giving away for the purpose of drug or indirect gain, or otherwise handling vinous or malt liquors." Nineteen cities in the State with a population of 5000 or over, were under no-license in 1913. The largest of these were Charlotte, Durham, Asheville, Greensboro, Wilmington, and Raleigh.

The legislature of Ohio in 1913 enacted a law carrying into effect the principles of the license amendment adopted in 1912. This amendment limits the number of saloons in "wet" townships and municipalities to one to each five hundred of population, and also provides that on second conviction for violation of the law, a saloon's license shall be revoked. Further restrictions were placed on liquor selling by the legislature. After August 1, 1915, a saloon cannot be located within 300 feet of a school house. In the local option elections held in the State during the year, no-license was in every case successful. Of the 88 counties of the State, 45 were without saloons in 1913. About 30 cities with a population of 5000 or over were under no-license.

In Oregon, in the election of November 4, 1913, 12 cities heretofore "wet," voted no-license, and three small cities heretofore "dry" voted for license. The legislature of 1913 passed a law prohibiting the licensing of saloons outside of municipalities. In Salem on November 4, no-license won by 488 majority, and on December 1 a prohibition plank was written into the city charter by a majority of 964. There were cities in the State with a population of 5000 or over under no-license. Of these the largest was Salem.

Measures were introduced in the Pennsylvania legislature of 1913, giving municipalities of over 10,000 population and all counties the right to vote separately on question of license or no-license. These measures failed to pass. There were 11 cities with a population of 5000 or more under no-license. The largest of these were New Castle, Butler, Washington, and Wilkinsburg.

In South Carolina in 1913 nine counties held local option elections. Of these five voted "wet" and four "dry." There were at the end of the year 11 cities with a population of 5000 or over under no-license. The largest of these were Greenville and Spartanburg.

In South Dakota a law which went into effect July 1, 1913, limits the number of saloons in the State to one for each 600. This eliminated about 125 saloons, leaving about 375 still in the State. There were approximately 1404 townships, and 135 incorporated cities and towns in the State without saloons in 1913. About 68 per cent. of the population of the State was under no-license at the end of the year 1913.

In Tennessee there were very important measures taken toward regulating the selling of liquor. Governor Hooper was committed to the enactment of law for the enforcement of liquor legislation. The Anti-Saloon League and other forces organized against the liquor traffic carried on an aggressive campaign in the State. There were three meetings of the legislature, one regular and two extra. No legislation relating to liquor traffic was enacted in the regular session, and an attempt was made to keep this in continuous session in order to prevent the governor from calling extra sessions for the passage of law-enforcement measures. The regular session failed and Governor Hooper called the first extra session on September 7. The opponents of liquor legislation were able to prevent the passage of any measure in this session before the expiration of the twenty days in which it could be held. On October 13, Governor Hooper convened the legislature in an extraordinary session. In this session three important measures were passed. The most notable of these was a so-called nuisance bill, effective on March 1, 1914. This has for its purpose the closing of every saloon gambling house, and disreputable resort in the State. Measures taken toward enforcing the prohibition law resulted in the practical elimination of saloons in the larger cities of the State. In 1913 there were 11 cities with a population of 5000 or over under no-license. These included Memphis, Nashville, Chattanooga, Knoxville, and Jackson, the largest cities in the State.

The legislature of 1913 in Texas enacted several laws for liquor regulation. These included a measure requiring the saloons to close at 9:30 P.M. until 6 A.M., and on Saturday from 9:30 P.M. until 6 A.M. Monday, and another measure made effective the Webb Federal statute throughout the "dry" territory of the State. This law also prohibits the shipment of liquor from saloon territory into prohibition territory within the State limits. The campaign for a State-wide prohibition law was carried on throughout the State during the year. Of the 249 counties, 177 had eliminated saloons by direct vote in 1913. Fifty-two counties were without saloons except in one or two places each. Twenty counties were entirely open to saloons. There were 18 cities with populations of 5000 and over under no-license. Of these the largest were Denison, Cleburne, Paris, Marshall, and Tyler.

As a result of elections held under the local option laws of Utah in 1913 there were only about 235 saloons remaining. Of this number, about 140 were in Salt Lake City. About 33 per cent. of the population of the State was under no-license in 1913.

The Vermont legislature in its session in 1913 passed a number of important measures. These were all designed to keep the liquor traffic within stricter limits. One of these measures prohibited holders of public office from operating licenses or working in licensed places. As a result of elections held under the local option law since its adoption in 1913, five cities with a population of 5000 or over were under no-license in 1913. About 77 per cent. of the population lived in communities where no-license prevailed. In 1913, 24 towns voted for license. Of these 18 already were under license laws.

Virginia is under a local option law. In 1912 a bill providing for State-wide prohibition was passed by the House delegates but was defeated in the Senate. The prohibition forces will renew the attempt in the legislative session of 1913. Of the 100 counties in the State, 85 had no-license in 1913, and 66 had no form of liquor license whatever. Six cities having a population of 5000 and over were under no-license in 1913. These were Charlottesville, Clifton Forge, Fredericksburg, Radford, Suffolk, and Winchester.

The local option law of Washington provides for a vote on the liquor question in towns, cities, and unincorporated portions of counties, as separate units. This law has been in operation since 1909. Under it, to the end of 1913, 220 elections had been held. Of these, 140 had resulted in "dry" victories, while 80 resulted in license. About 87 per cent. of the area of the State was "dry" at the end of the year.

In West Virginia at the November election of 1912 the electors by a majority of 92,342, voted to ratify the constitutional amendment providing for State-wide prohibition, and the legislature of 1913 enacted a measure putting this amendment into effect. This bill, known as the Yost bill, is perhaps the most stringent law enforcement measure on the statute books of any State. Under its provisions, it is unlawful to manufacture, sell, or give away intoxicating liquors anywhere within the State. It is also unlawful to ship intoxicating liquors to violators of the law. Druggists or club houses are prohibited from selling intoxicating liquors, and it is unlawful to advertise liquors by bill posts, circulars, newspapers, or otherwise in the State. Any violation of this law is punishable by fine or imprisonment in the county jail for the first offense, and by fine and imprisonment in the State penitentiary for the second offense. The law provides for a State superintendent of prohibition who shall have general supervision of the State and power to see that the prohibition laws are enforced.

The liquor laws of Wisconsin provide for local option for towns, villages, and cities. At the legislative sessions of 1913, county option was defeated. About 75 per cent. of the population of the State was under no-license at the end of 1913.

In Wyoming, the liquor laws of the State prohibit the existence of saloons outside of incorporated towns and cities, and five of the incorporated cities have excluded saloons by action of the city councils. There is a stringent Sunday-closing law which was upheld by the State Supreme Court in 1913. About 34 per cent. of the population of the State was under no-license laws at the end of 1913.

At the beginning of 1913, there were nine States which had passed prohibition laws, and steps had been taken to carry on aggressive campaigns for the enactment of such laws in 1914 in Virginia, Idaho, Iowa, and California. Votes will be taken in these States during the year. The nine States in which prohibition laws were effective were Georgia, Kansas, Maine, Mississippi, North Dakota, Tennessee, and West Virginia.

LIQUORS. The term "Liquor" includes all alcoholic beverages, which are ordinarily divided into four classes: Wines, malt liquors, distilled liquors, and cordials.

Recently in Germany there has appeared a product called "malt wine," which is made from malt, but prepared in such a manner as to have a very low extract, a very high content of alcohol, and a decided acidity, which makes it resemble more nearly a wine than a beer.

WINE. *Le Moniteur Vinicole* published the following table of the wine production of the world for the years 1911 and 1912:

	1911 Gallons	1912 Gallons
France	987,482,100	1,306,451,762
Corsica	3,441,900	2,139,192
Algeria	194,340,894	146,765,982
Tunis	3,300,000	5,500,000
Italy	930,600,000	995,702,400
Spain	368,594,400	312,400,000
Portugal	61,600,000	79,750,000
Azores, Canary Islands, and Madeira	770,000	836,000
Austria	63,800,000	55,000,000
Hungary	83,600,000	58,740,000
Germany	57,200,000	52,800,000
Russia	94,600,000	83,600,000
Switzerland	20,900,000	19,866,000
Turkey and Cyprus	26,400,000	22,000,000
Luxemburg	1,980,000	990,000
Greece	50,600,000	46,200,000
Bulgaria	28,600,000	26,400,000
Servia	11,000,000	9,900,000
Rumania	41,800,000	19,800,000
United States	28,600,000	35,200,000
Mexico	550,000	440,000
Argentine Republic	79,200,000	90,200,000

	1911 Gallons	1912 Gallons
Chile	63,800,000	55,000,000
Peru	4,290,000	4,400,000
Brazil	7,700,000	9,900,000
Uruguay	4,400,000	4,620,000
Bolivia	1,540,000	1,760,000
Australia	4,400,000	4,400,000
Cape of Good Hope	2,640,000	3,300,000

This table shows for France a very much higher yield in 1912 than in either 1911 or 1910. The best data for the year 1913 indicated that the production for France would be about two-thirds of the 1912 year's yield. Especially was this true of the champagne production, where it was estimated there would be about 2,200,000 gallons in 1913, as compared with 5,600,000 for 1912. Also the indications for the Cognac region were that there would be a very small production, and probably a very high price for brandy.

The best report for the German vintage indicated that the 1913 yield would be exceedingly low, in all probability not more than half the normal amount. As this followed a previous year of very low yield, the price of German wines would undoubtedly very materially increase.

Portugal and Spain both showed a slightly less than normal yield. Italy, however, from all appearances, was to have a most exceptional yield, and the best estimates indicated about 1,280,000,000 gallons of wine produced in 1913. Austria-Hungary and Algeria both show about normal conditions, indicating that the production of this year would be about the same as that of 1912.

The figures given in the previous table (35,200,000 gallons), for the 1912 production of the United States are undoubtedly too low. The probable production of wine in the United States for the year was about 50,000,000 gallons. The only exact data which is available regarding the production of American wines is that given in the report of the commissioner of internal revenue, for fortified wines, the production of which is directly under the supervision of the Treasury Department. The production of this class of wines in 1912 and 1913 is reported as follows:

	Tax gals. brandy used		Wine gals. fortified	
	1912	1913	1912	1913
Calif.	6,153,132.5	4,671,415.7	23,467,441	17,927,812.60
Hawaii	16,598	7,776.3	70,884	34,406.33
N York	143,422	154,151.8	595,009	637,789.64
N. C'lina	7,820	16,936.6	54,102	92,031.06
Virginia	....	88,206.4	....	581,672.84
Misc.	1,331.4	977.9	11,190	8,045.15
Total for U.S.	6,322,303.9	4,939,464.7	24,198,626	19,281,758.12

From this table it will be seen that there was a very material decrease in the production of sweet wines during 1913.

Fermented Liquors. The production of fermented liquors in 1913 in the United States was 65,324,876 barrels, an increase of 3,148,182 barrels, or 94,446,460 gallons, practically an increase of one gallon *per capita* over the previous year. There was, however, a decrease in the number of breweries in operation in 1913, there being 1446 as against 1461 in 1912. This decrease in the number of breweries was along the line of the same general tendency observed in previous years, there being 212 less breweries in operation during 1913 than in 1910. This had undoubtedly been brought about, to a certain extent, by the passage of prohibition laws in various States, which required the breweries to cease operations. This, however, had not apparently affected the production of beer.

In comparison with the 1446 breweries in the United States for its population, we find that Belgium for its 7,432,784 inhabitants has 3309 breweries. A recent consular report shows an interesting condition in Norway. From 1890 to 1899 the consumption of beer increased to 158,000,000 gallons; from 1899 to 1909 it fell off to 95,000,000 gallons, owing largely to the restrictions placed upon its sale. From 1909 to 1912, however, it gradually increased again up to 132,000,000 gallons, and recently a new law has gone into effect providing for the taxation of beer in proportion to its alcoholic content, with the intent that this may materially reduce the amount of alcohol in the beer, and its intoxicating effect.

In Bavaria the consumption of beer *per capita* increased from 60.15 gallons in 1910 to 64.98 gallons in 1911. The enormous production of beer in Bavaria will be more readily understood when compared with the *per capita* consumption of Germany as a whole, which was 24.85 gallons in 1910 and 28.10 gallons in 1911. The total production of beer for Bavaria in 1911 was 498,893,202 gallons.

Distilled Spirits. During the year 1913 there were in operation in the United States in the production of distilled spirits 870 distilleries, an increase of 49 over the number of the previous year. This, however, is very much below previous conditions. Five years previously, the Commissioner of Internal Revenue reported 1587 registered distilleries. This great decrease, however, was due largely to the fact of the extension of the prohibition laws, especially in the Southern States, where a very large number of small distilleries were in operation a number of years ago. The total production of distilled spirits, exclusive of fruit brandy, during the year 1912, was 185,353,383 taxable gallons, an increase of 7,103,398 taxable gallons over the production of 1912. In the following table, taken from the report of the commissioner of internal revenue, is stated the production of the various kinds of distilled spirits for the past four years, and a study of this table will show that there is practically very little change in the kind of distilled spirits produced in the last two years.

Production of Distilled Spirits

	Rum	High Wines	Gin	Whiskey	Alcohol	Commercial Alcohol
1910	1,730,551	206,534	2,985,435	82,463,894	50,703,845	15,841,370
1911	2,077,904	165,017	3,345,870	100,647,155	44,205,329	21,780,391
1912	2,266,063	131,001	3,577,861	98,209,574	45,869,685	24,482,304
1913	2,750,846	90,293	4,014,600	99,615,828	48,560,920	30,320,894

Regarding the whiskey bottled in bond, 1913 showed a decided increase over 1912, being 10,618,812 gallons, as against 9,752,486 gallons in 1912. There still continued, however, a very large amount of illicit distilling in the United States, 1447 distilleries of this class being seized and destroyed during the year 1913. As usual, practically all of these were in the Southern States.

During the year the Department of Agriculture issued an important ruling regarding brandy, holding that brandy is "the alcoholic distillate obtained solely from the fermented juice of fruit, distilled under such conditions that the characteristic bouquet, or volatile flavoring and aromatic principles, is retained in the distillate." Further, that grape brandy is "the distillate obtained from grape wine under these conditions." "Apple, peach, and other fruit brandies are similarly prepared from the fermented juices of the respective fruits." It was further held that the "so-called brandy prepared from grain, potato, or other form of industrial alcohol, or from alcohol obtained from the by-products of wine manufacture, mixed with more or less true brandy or other flavoring material, is adulterated and misbranded unless labeled to indicate its true composition." This ruling appeared to be a much more satisfactory one than those of a number of other countries regarding this product.

Since June 6, 1894, vodka has been under the absolute control of the Russian government, both as to its production and sale. Only the most highly rectified purified alcohol is permitted to be used. Permission is granted for the sale of vodka in bottles only, and no drinking is allowed either on the premises or the streets. Further, the sale of vodka is entirely separated from the sale of beer, the government allowing beer saloons to be specially licensed for the sale of beer, but not permitting the sale of either wine or other liquors on the same premises. In 1911 the revenue received by the Russian government from the sale of vodka amounted to $403,019,945, and the consumption *per capita* was two gallons.

Australia has recently enacted laws regarding the sale of brandy and other spirits, requiring that no product shall be sold as brandy unless wholly distilled from grape wine; and also that other spirits, with the exception of gin, Hollands, geneva, and liqueurs, shall not be sold for human consumption unless matured two years in wood.

CORDIALS. As a result of the ruling prohibiting the importation of absinthe into the United States, which was effective October 3, 1912, some very interesting information was found in the records of exportation of absinthe from France to the United States. In 1911, the value of the absinthe exported to the United States was $55,228. In 1912, it amounted to $120,362, which large increase was undoubtedly due to the fact that the importers were trying to obtain a large reserve supply before the regulation of October 3, 1912, went into effect.

LITERATURE. See LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; RUSSIAN LITERATURE; SCANDINAVIAN LITERATURE; and SPANISH LITERATURE.

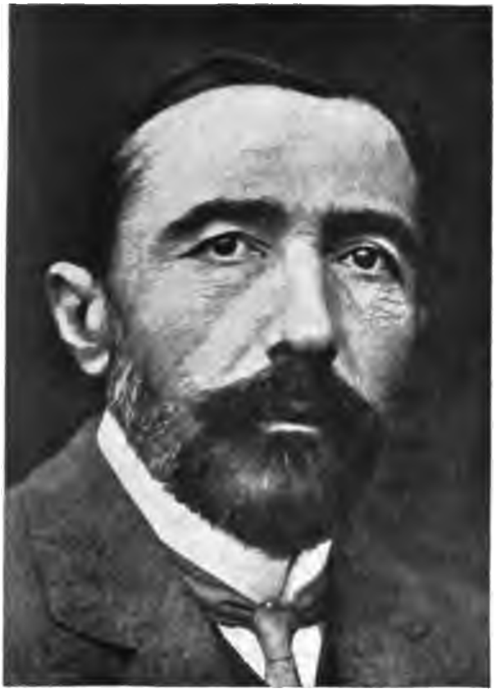
LITERATURE, ENGLISH AND AMERICAN. The large increase in the number of books produced in the United States in 1913 made the American output almost equal to that of Great Britain in the same year. For the three years 1909-11, the United States was ahead of Great Britain in the number of titles reported, but there was a falling off in this country of 2567 from 1910 to 1912, while in England there was no set-back but a slow and steady increase. Of the 12,230 books produced in 1913 in the United States, 3145 were by English or other foreign authors. Of this 12,230, 10,607 were new books and 1623 new editions of works previously published.

FICTION. More and more, poetry and fiction respond to the sociological and moral drift of the age. Discussion of divorce, of predatory finance, of civic selfishness seeks a wider expression in popular literature. Sometimes the poem or novel breaks down with the added propaganda, but its dignity and worth are often enhanced by the ethical content. Among English novels dealing with the need of new divorce laws in England perhaps the most artistic is *The Dark Flower*, by John Galsworthy, which gives "the love life of a man" as a sub-title, and in its episodes—"Spring," "Summer," and "Autumn"—depicts the inner life of passion, a surfeit of emotion, unrelieved by any other interest. *The Passionate Friends*, by Herbert G. Wells, is also painfully limited to a single aspect of life. In each case, as in the minor characters of *The Coryston Family*, by Mrs. Humphrey Ward, the freer divorce laws of America would have averted the tragedy of death, although not the pain of a broken marriage. Mrs. Ward's novel is also the story of a masterful woman, whose ruling passion for politics destroys her happiness and the peace of her home. *The Woman Thou Gavest Me*, by Hall Caine, is another attack upon the divorce laws of England which discriminate against women. *The Joy of Youth*, by Eden Phillpotts, is in a new vein, almost Meredithian in its depiction of a self-satisfied English squire, an unconventional artist and a heroine with brains, and in its clever conversations, and contrasts of England and Italy. In Mr. Phillpotts's older manner we find *Widecomb Fair*, portraying a world in a village. His *From the Angle of Seventeen* is a delightful portrayal of an English lad entering manhood and the business world of London. Maurice Hewlett takes Lord Byron as his hero in *Bendish; a Study in Prodigality*. *The Judgment House*, by Sir Gilbert Parker, passes from London to South Africa, and, in addition to the interplay of character, contains vivid pictures of the Boer War. Another novel of the same war is *Divided: a Story of the Veldt*, by Francis Bancroft, where two brothers although bound by deep love for each other fight on opposite sides. *Where the Strange Roads Go Down*, by Gertrude Page, treats of the life of an overstrained woman in a new country—Rhodesia. *The Breath of the Karroo*, by L. H. Brinkman, expresses the essence of life in South Africa. *The Regent*, by Arnold Bennett (published in America under the title of *The Old Adam*), is a further history of the ever delightful Denry the Audacious, the "Card" who undertakes a theatrical venture with brilliant success. *The Devil's Garden*, by W. B. Maxwell, which gives the development of a murderer, and *Sinister Street*, by Compton Mackenzie, were banned by the library censors because of their frank discussion of sex questions. *The Morning's War*, by C. E. Montague, a story of England and Ireland, and of a manly hero, is written with artistic restraint. The three Benson brothers bring out novels this year: *Watersprings*, by Arthur C. Benson, the restrained romance of a college Don; *Thorley Weir*, by E. F. Benson, one of the most pleasing books by that vivacious author; *An Average*

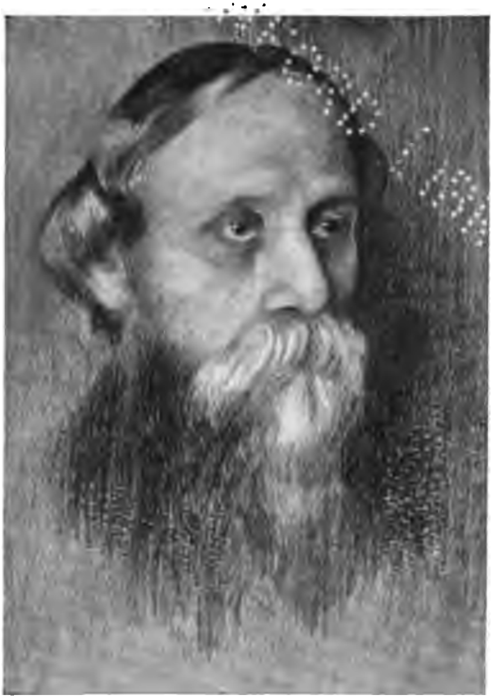
Man, by Robert Hugh Benson, an unattractive portrait of an unchivalrous young man. *An Affair of State*, by the versatile J. C. Snaith, is a clever political satire of present day England. *The Debit Account*, by Oliver Onions, is an interesting sequel to his powerful *In Accordance with the Evidence*, the painful story of a man whose guilty past hangs upon his consciousness like an invisible ball-and-chain. *The Way of Ambition*, by Robert Hichens, shows how a great genius may fail in the attempt to commercialize his art at the behest of an imperious and ambitious wife. *Stella Maris*, by William J. Locke, is the story of a pure soul sheltered by illness from all knowledge of evil, suddenly awakening to some of its most hideous aspects, and struggling back to peace. *After All*, by Mary Cholmondeley, pictures the life in an old English village with most delightful art, and keeps interest in the plot alert to the very end. *The Ffolliots of Redmarly*, by Mrs. Lizzie Allen Harker, adds another friendly group to the list her genius for getting at the heart of young people has given us, and the contrasted types are full of joyous vitality. *Wilsam*, by S. C. Nethersole, is a very human story of the hop fields of Kent. Another tiny town is depicted in *Gracechurch*, by John Ayscough. H. de Vere Stacpole, in *The Children of the Sea*, writes a romance of Iceland. *Shallows*, by Frederick Watson, is a realistic, historical novel of France and Scotland in Jacobite days. We meet again with pleasure Professor Challenger of *The Lost World* in Sir Arthur Conan Doyle's *The Poison Belt*. *Valentine*, by Grant Richards, is a diverting tale of an airy young architect in London, and a remarkable flight across the Channel after missing an important train. Mrs. Belloc Lowndes tells a good mystery story of Paris in *The End of Her Honeymoon*. In *A Prisoner in Fairyland*, Algernon Blackwood writes of a London financier who enters the Ivory Gate and passes on to a world of fantastic but exquisite imagination, the long-lost fairyland of childhood. *Lu of the Ranges*, by Elenor Mordaunt, is a powerful story of the Australian mountains, Melbourne life, and the development of a girl's character under most adverse conditions. A few other English novels should be mentioned: *Fortitude*, by Hugh Walpole; *The Garden Without Walls*, by Coningsby Dawson, the story of a revolt against convention; *Concert Pitch*, by Frank Danby (Mrs. Julia Frankau), a study of an artistic temperament; *The Catfish*, by Charles Marriott; *The Amateur Gentleman*, by Jeffrey Farnol; *The Happy Warrior*, by A. S. M. Hutchinson; *The Flying Inn*, by Gilbert Keith Chesterton.

The leading American novels are characterized by earnestness of purpose and sincerity of style. *The Inside of the Cup*, by Winston Churchill, dealing with the relation of the Church to modern life, aroused wide discussion and has had a perceptible effect on religious activities. *The Custom of the Country*, by Edith Wharton, discloses the devastating influence of a social climber, and finely contrasts French and American morals and manners. *O Pioneers!* by Willa Sibert Cather, tells the story of the land conquered by Nebraska farmers, the epic greatness of their struggle, and the types of womanhood it evoked. Other American novels are: *New Leaf Mills: a Chronicle*, by William Dean Howells, the Dean of American fiction, which pictures the pioneer life of the Middle West, about the time of the Mexican War; *Westways, a Village Chronicle*, by the late S. Weir Mitchell, makes a Pennsylvania village during 1855-1866 live again its stormy life, by his careful art; *The Story of Waitstill Baxter*, by Kate Douglas Wiggin, faithfully reproduces the life of an old New England village before the Civil War and the railroads had broken in upon its peace; Henry Sydnor Harrison followed his great success, *Queed*, with *V. V.'s Eyes*, a story of Richmond and of the potent influence of a strong character upon the spiritual development of a selfish, ambitious girl; *The Way Home*, by Basil King, is the old story of the man who sells his soul to gain the world and finds himself cheated in the bargain; *Virginia*, by Ellen Glasgow, is the common tragedy of the woman, reared to reverence the ideals of a former generation, and unable to change them in order to cope with present day life; *Laddie*, by Gene Stratton-Porter, describes farm life in Indiana forty years ago, and is a book of the open fields, wholesome and serene; *Hagar*, by Mary Johnston, is an impassioned plea for greater freedom for women; *Van Cleve*, by Mary S. Watts, is a tale of Cincinnati, of the Spanish-American War, and of a thrifty hero who supports several worthless relatives; *T. Tembarom*, by Frances Hodgson Burnett, contrasts New York streets and English country life by means of a delightful hero, who starts as a newsboy and becomes heir to a great English estate. *Mothering on Perilous*, by Lucy Furman, is the diary of a missionary teacher in the Kentucky mountains, and *The Ordeal*, by Charles Egbert Craddock (Miss Murfree) pictures life in the Tennessee mountains. *Robin Hood's Barn*, by Alice Brown, is a New England story of simple charm in the telling. *My Little Sister*, by Elizabeth Robins (Mrs. C. R. Parkes) is a painful story of the white slave traffic. *The Taste of Apples*, by Jeanette Lee, is wholesome and spicy. It is noteworthy that so many American novels are by women. And of men's novels many are about women, particularly of the noxious, parasitic type, like the heroine of Robert Herrick's *One Woman's Life*, who represents a happily passing phase in the development of woman. The newer woman is sympathetically treated in *The Business of Life*, by Robert W. Chambers; *The Penalty*, by Gouverneur Morris, and *The Iron Trail*, a story of the development of Alaska, by Rex Beach. Essentially masculine in mood and method are: *John Barleycorn*, by Jack London, a singular autobiography of the man who drinks; *The Valley of the Moon* and *The Abysmal Brute* by the same author; *The Heart of the Hills*, by John Fox, Jr., a chronicle of half-savage life in the Cumberland Mountains; *The Southerner* (Abraham Lincoln), by Thomas Dixon; *Sylvia*, by Upton Sinclair; *The Flirt*, by Booth Tarkington; *His Great Adventure*, by Robert Herrick; *The Desired Woman*, by Will N. Harben, another tale of the Georgia mountains the author knows and loves; *Down Among Men*, by Will Levington Comfort; *Elkan Lubliner, American*, by Montague Glass (Marsden); *Gold*, by Stewart Edward White; *If You Touch Them They Vanish*, a Canadian tale, by Gouverneur Morris; and *Otherwise Phyllis*, by Meredith Nicholson.

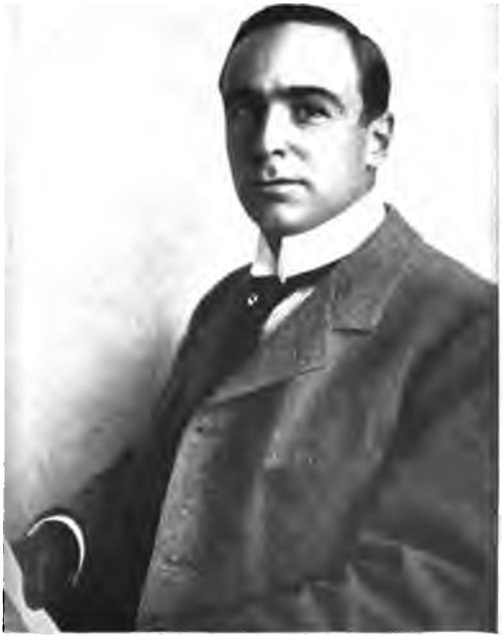
Among the many volumes of short stories, *A Changed Man*, by Thomas Hardy, stands easily first. *'Twixt Land and Sea*, by Joseph Conrad, breathes the very essence of the tropics. *All Men Are Ghosts*, by L. P. Jacks, is a volume of



JOSEPH CONRAD



RABINDRA NATH TAGORE
Winner of the Nobel Prize in Literature 1913



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WINSTON CHURCHILL

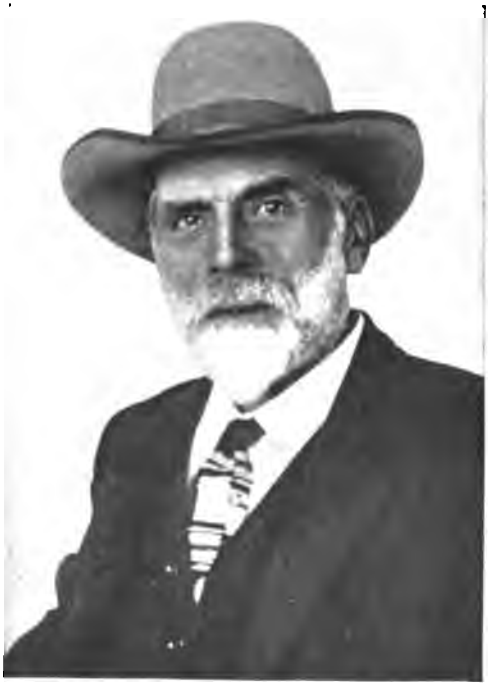


Photo by Paul Thompson, N.Y.

ROBERT BRIDGES
British Poet-Laureate, 1913

FOUR AUTHORS PROMINENT IN 1913

original short stories. *Here Are Ladies*, by James Stephens, is a collection of misunderstandings. *Mixed Grill*, by Pett Ridge, is a pleasing mixture. Other notable volumes of short stories are: *Shadows Out of the Crowd*, by Richard Curle; *The Headquarter Recruit*, by Richard Dehan; *News from the Duchy*, by Sir Arthur Quiller-Couch; *The Lore of Proserpine*, by Maurice Hewlett; *Women of the Country*, by Gertrude Bone; *Studies in War*, by F. Britten Austin; *The Old Time Before Them*, by Eden Phillpotts; *The Eternal Masculine*, by Mary Raymond Shipman Andrews; and *The Escape of Mr. Trimm*, by Irvin Cobb.

Essays and Literary Criticism. Essays, the product and the resource of leisure, show no increase on either side the Atlantic, although a gratifying number of meritorious collections of prose sketches are brought out each year. *Joyous Gard*, by Arthur Christopher Benson, adds another volume to the long list of his serene and gently contemplative essays. As a contrast we have *Essays in Rebellion*, by Henry W. Nevison, full of fiery denunciation and intense enthusiasm on all sorts of public themes. *The Pathos of Distance; a Book of a Thousand and One Moments*, by James Huneker, is written with his usual charm, touched with delicate melancholy. *Old Standards*, by John Halsham, also possesses the wistful backward look and a suspicion of patient pessimism in viewing the present. *From the Porch*, by Lady Ritchie, is a charming miscellany. *The American Spirit*, wholesome lectures and addresses by Oscar S. Straus; *History as Literature and Other Essays*, by Theodore Roosevelt;*The Different West*, by Arthur E. Bostwick; and *Youth and Life*, by Randolph S. Bourne, are all notable as voicing the spirit of hope and manly courage in facing life. *Crowds*, by Gerald Stanley Lee, is buoyant and optimistic in its survey of city life. *Out of the Dark*, by Helen Kellar, contains intensely personal essays, remarkable for their triumph over limitations. *The Summit of the Years*, by John Burroughs, is the fruit of ripe wisdom and serene confidence in the goodness of the world. Another lover of nature, the artist Edward Martin Taber, writes of northern Vermont in his *Stowe Notes, Letters and Verses*. *Loiterer's Harvest*, by E. V. Lucas, is a book of charming essays on London past and present. *The Larger Values Make for the Well Rounded Life*, by Humphrey J. Desmond, consists of aphoristic essays. *Monologues*, by Richard Middleton, are modestly described as "journalistic" by the author. Among the critical books of the year there are several of more than usual importance. *The English Novel*, by George Saintsbury comes nearer to a complete study of the subject than any that has yet been made, although Professors Raleigh, Cross, and Stoddard have written notable books concerned with it. *The Victorian Age in Literature*, by Gilbert Keith Chesterton, is a vital and witty discussion of the topic. A second edition of *The Quintessence of Ibsenism*, by Bernard Shaw, is notable because of a new preface, criticism, and notes, provoking discussion. *The Drift of Romanticism* forms the eighth volume of Paul Elmer More's fine and scholarly *Shelburne Essays*, which series, in range, literary quality, and authoritativeness, ranks with the very best contemporary work in English literary criticism. *The Enjoyment of Poetry*, by Max Eastman, is a fresh and frank plea for a greater freedom in teaching literature. *The Spirit of American Literature*, by John Albert Macy, defends the thesis that American literature, like American life, is unfinished. *English Epic and Heroic Poetry*, by W. MacNeile Dixon, is a careful treatise. Three books on Browning are critical rather than biographical: *Browning's Heroines*, by Ethel Colburn Mayne; *Browning and His Century*, by Helen A. Clarke; *Two Masters—Browning and Turgenief*, by Phillips Moxon. *Swinburne: an Estimate*, by Professor Drinkwater, is an attempt to present a definitive and unprejudiced view of the poet. *The Tarn and the Lake: thoughts on Life in the Italian Renaissance* is a very graceful essay by C. J. Holmes. *The Renaissance and its Makers*, by J. D. Symon and S. L. Bensuan; *Italy in the Thirteenth Century*, by Henry Dwight Sedgwick; *Dante and Aquinas*, by Phillips H. Wicksteed; *Dante, Goethe's Faust and Other Lectures*, by Herbert Baring Garod and Lucy F. Garod; *The Greek Genius*, by R. W. Livingston; *The Verse of Greek Comedy*, by John W. White—all these are in various ways noteworthy. *What Can Literature Do For Me?* by C. Alphonse Smith, are direct, forceful and sensible lectures. *The Invisible Alliance*, by Francis Grierson, contains pleasing sketches. *Political and Literary Essays: 1908-1913*, by the Earl of Cromer, is engaging and interesting. The following works, also, should be mentioned: *Voices of To-morrow*, critical studies of the new spirit in literature, by Edwin Bjorkman; *Clio, a Muse and Other Essays*, by George Macaulay Trevelyan; *Milton's Astronomy*, by Thomas N. Orchard, a curious work of textual criticism; *The Influence of Baudelaire*, by G. Turquet-Milnes; *Censorship in England*, by Frank Fowell and Frank Palmer; *The Elizabethan Playhouse*, by W. J. Lawrence; *Walter Pater*, a critical study by Edward Thomas; *The Street of Adventure*, by Phillip Gibbs, which tells the story of Fleet Street; and *The Adventure of a Newspaper Man*, by Frank Dilnot. More purely technical are such books as: *The Writing of English*, by W. T. Brewster; *Newspaper Writing and Editing*, by Willard Grosvener Bleyer of the University of Wisconsin; *The Story of a Page*, by John L. Heaton; *A Tract on the Present State of English Pronunciation*, by the Poet Laureate Robert Bridges; *The Book of Public Speaking*, by Arthur Fox Davis; and *The Press and its Story*, by James D. Symon.

Drama. The renewed interest in the Drama is evidenced by the issuing of many plays in library editions. One of the most interesting volumes of collected plays is found in *Plays of Old Japan. The "No,"* by Marie C. Stopes, translated by M. C. Stopes and Joji Sakurai, with a preface by Baron Kato. These plays were all composed before the sixteenth century and yet are acted in Japan to-day without the slightest change, and form a music drama not unlike the Wagnerian operas. Henry Arthur Jones publishes two plays: *The Divine Gift*, a play in three acts, and *Mary Goes First*, a comedy in three acts and an epilogue, both good examples of his cleverness in stage-craft and dialogue. *The Necessary Evil*, by Charles Rann Kennedy, is a tragedy in one act and a discussion of the same subject as Brieux's *Damaged Goods*, but in a more imaginative way. *Esther Waters*, by George Moore, has been dramatized by the author into a five-act play. *This Generation*, by S. M. Fox, belongs to the series called by its publisher *Plays of To-day and To-morrow*. In *the Vanguard*, by Katrina Trask, is a peace play in the vein of *The Terrible Meek* of last year by Charles Rann Kennedy. In both plays the cruel unwisdom of war is vividly portrayed. *Jacob Leisler*, by William O. Bates, depicts the first elected governor of New York as a martyr-hero. *Magic*, by Gilbert K. Chesterton, dramatizes the supernatural.

Shakespeare as a Playwright, by Brander Matthews, is an interesting study of the dramatist. *Irish Plays and Playwrights*, by Cornelius Weygant, is characterized by thorough knowledge and discriminating criticism. *Ten More Plays of Shakespeare*, by Stopford A. Brooke, is a careful piece of criticism. *The Baconian Heresy, a Confutation*, by J. M. Robertson, and *Shakespeare, Bacon and the Great Unknown* are books upon the Baconian theory. *The Comedy of Manners*, by John Palmer, is a spirited and admirable review of Restoration comedy. In *Ancient Art and Ritual*, Jane Ellen Harrison devotes two-thirds of her book to the origin and development of the Greek drama. More modern in their spirit are: *The Foundations of a National Drama*, by Henry Arthur Jones; *The New Spirit in Drama and Art*, by Huntly Carter; *The New American Drama*, by Richard Burton; *Towards a New Theatre*, forty designs for stage scenes with critical notes by the inventor, Edward Gordon Craig; and William Winter's *The Wallet of Time*, a pleasant chronicle of the American stage.

Poetry. An increasing taste for poetry is evinced by the number of volumes of verse that are appearing, several of this year's publications being much above the average in spirit and execution. *Tales From the Mermaid Tavern*, by Alfred Noyes, are full of rollicking music befitting the theme, re-creating in verse the spacious days of Queen Elizabeth. *The Daffodil Fields*, by John Masefield, dramatically contrasts South American pampas and the daffodil fields of England in a story of concentrated passion. The same author has written *The Story of a Round-House and Other Poems*. *Poems*, by Alice Meynell, are full of gentle melancholy but also of grace and pensive charm. *The Works of Francis Thompson* have been published this year in a definitive edition which has had a sale of many thousands, gratifying and surprising lovers of his exquisite verse. *The Wolf of Gubbio*, by Josephine Preston Peabody, takes the lovable St. Francis of Assisi as the leading character in a Christmas miracle play. *Knave of Hearts*, by Arthur Symons, is full of subtle *nuances* of feeling delicately expressed. *Auguries*, by Lawrence Binyon, presents the author's philosophy of life with fine exactness. Gilbert Murray has translated into rhyming verse the *Rhesus* of Euripides. *The Poetical Works of William Drummond of Hawthornden* have been carefully edited by L. E. Kastner. *Daddy Do-Funny's Wisdom Jingles*, by Ruth McEnery Stuart, contains quaint beast-stories in negro dialect. Notable, also, are: *Cor Cordium*, by Alfred Williams; *A Woman's Reliquary*, by Professor Dowden; *Child of the Amazons*, by Max Eastman; *The Flood of Youth*, by Sherwood Spencer; *The Snowshoe Trail and Other Poems*, by Isaac Rustling Pennypacker; *The Kingdom of All Souls* and *A Day at Castrogiovanni*, by George Edward Woodberry; *First Love*, a lyrical sequence, by Louis Untermeyer; *Horizon Songs*, by Grace Duffield Goodwin, poems by a nature-poet; *Poems and Ballads*, by Hermann Hagedorn; *Songs from Books*, by Rudyard Kipling; *Ultima Veritas*, by Washington Gladden, thoughtful poems, some of them of the Civil War. The most important poetical event of the year was the conferring of the Nobel Prize in literature upon Rabindra Nath Tagore, a Hindu poet, whose *Gitanjali*, a collection of mystical poems, has been published with an introduction by William Butler Yeats.

Literary Biography. The most interesting and probably the most important literary biography of the year is that of the strange poet Francis Thompson, in whose *Life* Everard Meynell has accomplished the difficult task of uniting perfect frankness and perfect sympathy. Next in importance to this fascinating biography of a morbid man of genius comes that of an eminently sane woman of genius, *Jane Austen, Her Life and Letters*, by William Austen-Leigh and Richard Arthur Austen-Leigh, a family record somewhat too detailed but full of interesting facts hitherto unpublished. Another great English novelist is discussed in *The Early Life of George Eliot*, by Mary H. Deakin. A brief sketch of *Margaret Fairless Barber* ("Michael Fairless") has been published by her sister and literary executor, revealing the long concealed identity of the author of *The Roadmender, the Grey Brethren*, and other notable stories. *The Life of Edward Bulwer, First Lord Lytton*, by his grandson the Earl of Lytton, reveals with frankness the domestic tragedy of his life, for which disclosure W. A. Frost's *Bulwer Lytton: an exposure of the errors of his biographers*, cleared the ground. Arthur Price has translated from the French of Constantin Photiades: *George Meredith, his life, genius and teaching*. *The Romance of an Elderly Poet*, by A. H. Broadley and Walter Jerrold, is the result of the discovery of letters from the poet Crabbe to a certain Miss Elizabeth Charter. Able autobiographic works were: *Early Life of Mark Rutherford*, by himself; and *Vale*, the third volume of *Hail and Farewell*, by George Moore. T. H. Escott wrote the biography of his friend *Anthony Trollope*. *The Private Life of Henry Maitland*, by Morley Roberts, is a scarcely veiled, intimate life of George Gissing, painful in its realism. A few important English biographies of authors remain to be noted: *William Morris: a Study of Personality*, by Arthur Compton-Ricket; *R. L. S.*, by Francis Watt; *Memories of Charles Dickens*, by Percy Fitzgerald, who, except Marcus Stone, is the last of Dickens's literary friends; *Coleridge and Wordsworth in the West Country, their friendship, work and surroundings*, by Professor Knight; *Dandies and Men of Letters*, by Leon H. Vincent; *Thames Side in the Past*, sketches of its literature and society, by F. C. Hodgson; and *Memories*, by the Hon. Stephen Coleridge. A group of American biographies call for special mention. *The Letters of Charles Eliot Norton*, edited by his daughter, Sarah Norton, and M. A. de Wolf Howe, are most enjoyable, the result of a long life rich in friendships. *Goldwin Smith, His Life and Opinions*, and a *Selection from Goldwin Smith's Correspondence*, by Arnold Haultain, cover the time of his residence in America. *Some Letters of William Vaughn Moody*, edited by Daniel Gregory Mason, give a glimpse into the rare nature of a reticent poet. *A Small Boy and Others*, by Henry James, is a characteristically elusive bit of autobiography. Biographies of foreign authors worthy of mention are fewer than usual. The following may be mentioned: *Goethe*, by Houston Stewart Chamberlain; *Hen-*

rik Ibsen, Poet, Mystic and Moralist, by Henry Rose; *August Strindberg*, by D. Lind-af-Hageby; *The Son of a Servant*, by August Strindberg, a veiled autobiography; *Ellen Key: Her Life and Work*, by Louise Mystrom-Hamilton, a friend and co-worker of the Swedish philanthropist; *Antonio Fogazzaro*, by Eugenio Donandoni; *My Recollections and Reflections*, by Yoshio Markino, a naïve criticism of foreign customs.

GENERAL BIOGRAPHY. The number of biographies, memoirs, reminiscences, and collections of correspondence published each year in Great Britain and the United States continues to be very great. For 1913 it is necessary to note not only the amount of this class of literature but the presence of several works of quite exceptional importance. Perhaps the book which has attracted the most general interest is *Theodore Rooosevelt, an Autobiography;* published in England under the title *Fifty Years of My Life*. The *Autobiography of George Dewey* is especially timely in view of the discussion of the Philippine question. The year has brought forth no less than three biographies of the first importance dealing with British statesmen: *The Life of John Bright*, by George Macaulay Trevelyan; *The Life of Henry Labouchere*, by Algar Labouchere Thorold, and the second volume of the *Life of David Lloyd-George*, by Herbert du Parcq. The *Memoirs of the Viceroy Li Hung-Chang* is interesting chiefly for the glimpses it gives of the human side of the great Chinese minister. The chief biography of a man of science for the year is certainly the *Letters and Recollections of Alexander Agassiz*, edited by G. R. Agassiz; although G. T. Wrench's story of surgery in *Lord Lister: His Life and Work* is a work of great merit in spite of a certain amount of intolerance toward all schools of surgery which have departed in any degree from the methods of Lister. *The Autobiography and Life of George Tyrrell* is a valuable historical document because of the important part which the author played in the religious life of the nineteenth century. *My Life*, by August Bebel, is pleasantly written and very illuminating as an account of early German Socialism.

There are a few biographies of American statesmen which stand out from the rest either from the literary merits of the book or from the historical importance of the material dealt with, and notably: the *Life of Thaddeus Stevens*, by James Albert Woodburn; the *Speeches, Correspondence and Political Papers of Carl Schurz*, edited by Frederic Bancroft; *The Life of Lyman Trumbull*, by Horace White; Henry Cabot Lodge's *Early Memories; La Follette's Autobiography;* John Sharpe Williams's lectures on the Blumenthal foundation, entitled *Thomas Jefferson: His Permanent Influence on American Institutions;* and John Jay Chapman's *Life of William Lloyd Garrison*.

Among the biographies of artists, one of the most interesting is *Personal Recollections of Vincent Van Gogh*, by Elizabeth Van Gogh, reminiscences of a post-impressionist. We have also: *Gustav Mahler*, by Paul Stefan; *The Reminiscences of Augustus Saint-Gaudens*, edited by *Homer Saint-Gaudens; Francisco Goya*, by Hugh Stokes; *Hans Holbein the Younger*, by Arthur B. Chamberlain; and *Harriet Hosmer*, letters and memoirs edited by Cornelia Carr.

Lives of men of science not already mentioned include: *The Life and Adventures of Audubon, the Naturalist*, by Robert Buchanan; *Fabre: Poet of Science*, by Bernard Miall; *Robert Fulton, Engineer and Artist*, by H. W. Dickinson; *"J": a Memoir of John Willis Clark*, by A. E. Shipley. Of the many biographies of men and women distinguished in fields of religion, philanthropy, and social reform a few titles may be selected: *Livingstone and Newstead*, by A. Z. Fraser; *The Life of Florence Nightingale*, by Sir Edward Cook; *My Father*, by Estelle W. Stead; *Frances Willard*, by Ray Strachey; and the *Life of Octavia Hill*, a collection of letters edited by C. E. Maurice.

RELIGION. Among the many books dealing with various aspects of religion there are two important works on the life after death: *The Belief in Immortality*, by J. G. Fraser, whose monumental work, *The Golden Bough*, has reached its sixth part; and *Our Eternity*, by Maurice Maeterlinck, in which theories of the survival of the spirit are discussed. *Early Zoroastrianism*, by James Hope Moulton, is noteworthy as the work of an authority on the subject. Other important books fundamentally concerned with religion are: *Four Stages of Greek Religion*, by Gilbert Murray, England's eminent Greek scholar; *The Early Roman Episcopate*, by William Earnest Beet; *The Preaching of Islam*, a history of the propagation of the Moslem faith, by T. W. Arnold; *A History of the Literature of Ancient Israel*, by Henry Thatcher Fowler, covering the ground from the earliest times to 135 B.C.; *The Religious Life of the Anglo-Saxon Race*, by M. V. B. Knox, and *The Origin and Antiquity of Man*, by George Frederick Wright. More modern aspects of religion are treated in: *The Quakers in Great Britain and America*, by Charles F. Holder; *France of To-day: Its Religious Orientation*, by Paul Sabatier, translated by Henry Bryan Binns, predicting a great religious revival; *Ethics and Modern Thought*, by Rudolf Eucken, which contains the lectures delivered by the Jena professor at New York University; *Jews and the Future*, by Edward William Winstanley, a scholarly treatise; *The Religious Belief of Scientists*, by Arthur H. Tabrum, quotes from such men as Sir George Stokes, Lord Kelvin, and Lord Rayleigh; *Getting Together; Essays by Friends in Council on the Regulative Ideas of Religious Thought*, edited by James Morris Whiton; and *Religion of To-day*, by J. Brierly. The psychological aspect of religion is ably discussed in several works: *Christian Faith and the New Psychology*, by David A. Murray; *Psychology of the Religious Life*, by George Malcolm Stratton; *A Psychological Study of Religion*, by James H. Leuba; *The Religious Revolution of To-day*, by James T. Shotwell, a discussion of the psychological basis of religion and its present status; *The Psychology of the Christian Life*, by Horace Emory Warner; and *The Psychology of the Christian Soul*, by George Steven. There are many volumes printed every year on the founder of the Christian religion. A few may be noted: *Jesus the Christ: Historical or Mythical?*, by Thomas J. Thorburn; *The Historic Jesus*, a study of the synoptic gospels by Charles Stanley Lester; *Jesus*, by George Holley Gilbert; *The Historic Jesus*, by David Smith; *The Reasonableness of the Religion of Jesus*, by William Stephen Rainsford; *Jesus Said*, edited by Frances E. Lord; *The Fundamental Christian Faith*, by the late Charles Augustus Briggs; *The Most Beautiful*

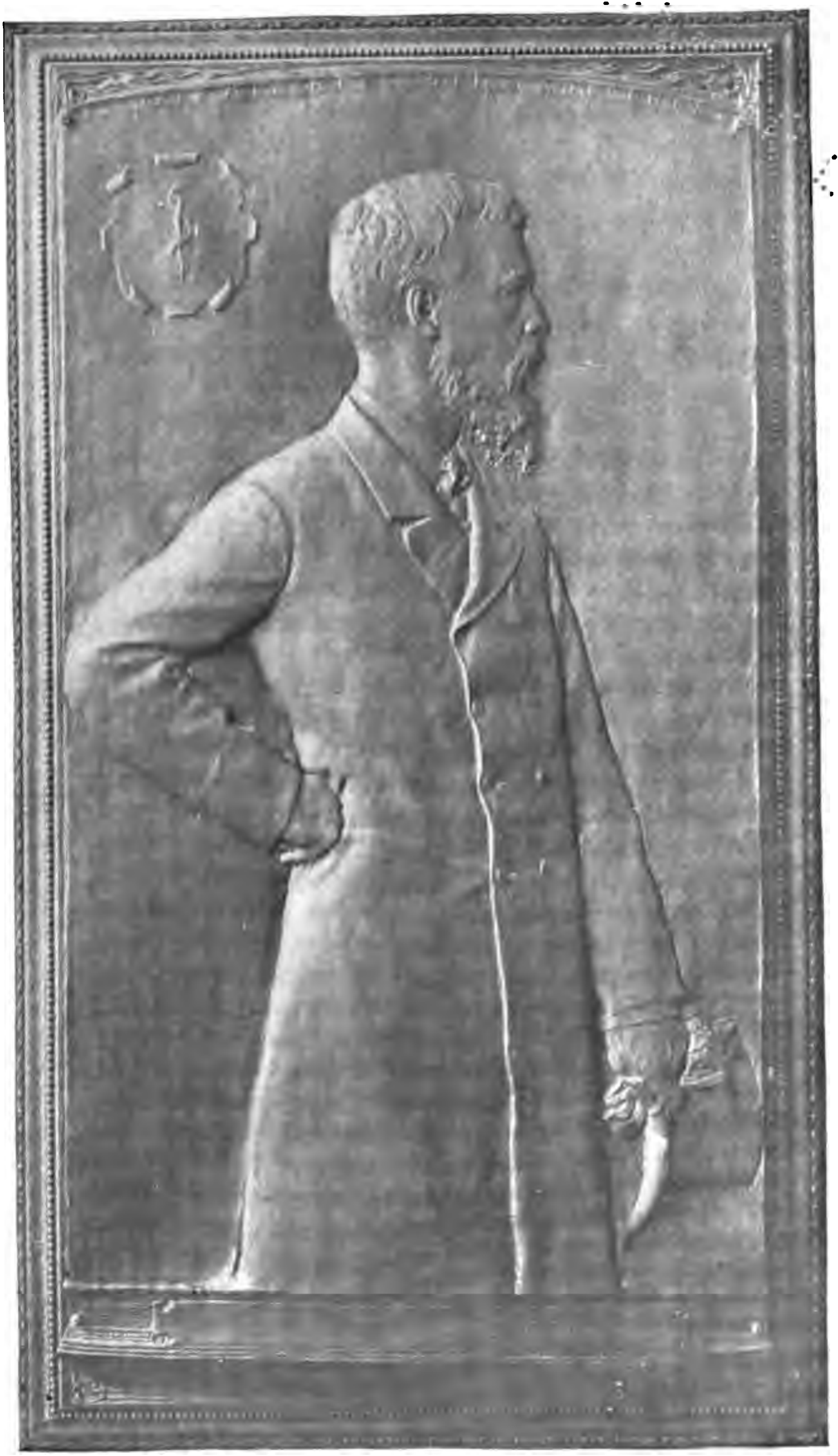
Book Ever Written (a title taken from Renan in speaking of the gospel according to Luke), by D. A. Hayes. In the historical development of religion we should mention: *Studies in the History of Religions,* edited by David Gordon Lyon and George Foot Moore; *The New Testament Documents,* by George Milligan; *Coptic Apocrypha in the Dialect of Upper Egypt,* edited with English translation by E. A. Wallis Budge; *A Critical Introduction to the Old Testament,* by George Buchanan Gray; *The Literature of the Old Testament,* by George Foot Moore; and *The Epistle of Priesthood* (Hebrews), by Alexander Nairne. Religious essays abound. Some of the most impressive are: *The Preacher, His Life and Work,* by J. H. Jowett; *Religion and Life,* by Henry Churchill King; *Rudolf Eucken's Message to Our Age,* by Henry C. Sheldon; *Sociological Study of the Bible,* by Louis Wallis; *French Prophets of Yesterday,* a study of religious thought under the Second Empire, by Albert Leon Guerard; *Mysticism in Christianity,* by W. K. Fleming; *The Evolution of the Monastic Ideal,* by Herbert B. Workman.

History. When the recent great shift in the centre of the historian's interest from the political—or rather dynastic and military—affairs of nations to the daily life of the people is considered, it is surprising to see how completely political history still dominates the book mart. There is a steadily growing literature of purely economic and industrial history, but it still bulks small in the total yearly output of history, whether text-book, general history, or scholarly monograph. The solution of this apparent paradox is to be found in the fact that political history has been largely revolutionized from within and has incorporated with itself so much of economic and social material that the distinction between the two types of work is becoming less significant with every year.

Perhaps this tendency is most clearly shown in the field of American history. The year's great contribution to American history is John Bach McMaster's *History of the People of the United States from the Revolution to the Civil War, vol. viii.,* a work as broad in scope as it is original in treatment. Professor C. A. Beard clothes an economic thesis in a political wrapper in his book, *An Economic Interpretation of the Constitution of the United States,* showing that the Constitution was not the work of revolutionary theorists but of conservative and wealthy men aiming above all to make property rights secure. Distinctly in the newer fields are such books as Professor Albert Bushnell Hart's *Social and Economic Forces in American History; Causes and Effects in American History,* by E. W. Morse; *An Industrial History of the American People,* by J. R. H. Moore; *Economic Beginnings of the Far West,* by Katherine Coman. As in previous years the Civil War period continues to furnish the material for very many books, perhaps a majority, of American political history. We note particularly James Ford Rhodes's *Lectures on the American Civil War; The American Civil War,* by J. K. Hosmer; and *The History of the Reconstruction Period,* by James Schouler. Military studies of interest are: *War Time in Manila,* by Rear-Admiral B. A. Fiske; *Major Operations of the Navies in the War of American Independence,* by Captain Mahan; and *A Naval History of the American Revolution,* by Gardner W. Allen. More general surveys of American history are: *A Short History of the United States,* by John Spencer Bassett; *From Jefferson to Lincoln,* by William MacDonald; *One Hundred Years of Peace,* by Henry Cabot Lodge, a study of a century's pacific relations between England and the United States; and *Transatlantic Historical Solidarity,* by Charles Francis Adams, consisting of the author's Oxford lectures on American history. In British history there are several general surveys: *The Making of England,* by Gilbert Slater; *A History of England from the Earliest Times to the Present Day,* by A. D. Innes; *England since Waterloo,* by J. A. R. Marriott, the seventh volume of a series edited by Charles Oman; *A History of England from the Accession of James the Second, vol. i.,* by Charles H. Firth. French history always calls forth a number of studies, especially the revolutionary and Napoleonic epochs, but this year such works are not as numerous as usual. *The New France,* by William S. Lilly, is a pessimistic study of French democracy since 1879; *England and the Orleans Monarchy,* by Major John Hall, relates the story of a previous *entente* between France and England. *Symbol and Satire in the French Revolution,* by E. F. Henderson, is richly illustrated with contemporary caricature. Of military studies there are *The Franco-Prussian War and Its Secret Causes,* by Émile Ollivier, translated by G. B. Ives; and Hilaire Belloc's monograph on *Poitiers.* Historical works in other fields which must be listed are: *The Fall of the Dutch Republic,* by H. W. van Loon, a work at once of great scholarship and popular interest; *Italy in the Thirteenth Century,* by K. D. Sedgwick; *Jena to Eylau,* a history of the Prussian army by General von der Goltz, translated by Captain C. F. Atkinson; *An Outline History of China,* by H. H. Gowen; *The Queens of Aragon,* by E. L. Miron; *The Influence of Monarchs,* by Frederick A. Woods, studies of European royalty; *The Evolution of States,* by J. M. Robertson; and *The Story of the King's Highway,* by Sidney and Beatrice Webb.

Travel and Contemporary History. One book of modern travel stands out from the others of the year as much perhaps because of the vivid dramatic interest of the narrative as because of the unforgettable tragedy which closed it. *Scott's Last Expedition,* by Robert F. Scott, edited by Leonard Huxley and Dr. E. A. Wilson, is the epic of the Antarctic pole. *Lost in the Arctic,* by Ejnar Mikkelsen, is another tale of heroism from the other end of the earth. *My Life with the Eskimo,* by Vilhjalmur Stefansson, enlarges our knowledge of this people in no small degree. The Far East is as attractive to explorer and author as either pole. *Trans-Himalaya,* an account of discoveries and adventures in Tibet, by Sven Hedin, introduces the reader to vast regions which nature and the policy of the Tibetans have hitherto barred to white men. J. O. P. Bland's study, *Recent Events and Present Politics in China,* contains a rather pessimistic account of that country's condition and prospects.

The two Balkan wars have produced not only accounts of the struggle but many studies of the chief nations engaged, of which may be cited: *With the Bulgarian Staff,* by Noel Buxton, M.P..; *The Balkan War,* by Philip Gibbs and Bernard Grant; *The Ottoman Empire,* by Henry W. Stead; *The Hapsburg Monarchy,* by Henry W. Stead; *Czar Ferdinand and His*



DOCTOR S. WEIR MITCHELL

THE PORTRAIT BAS-RELIEF BY AUGUSTUS ST. GAUDENS

People, by J. MacDonald; *The Near East*, by Robert Hichens; and *Rambles and Studies in Greece*, by J. P. Mahaffy. No European nation is at present the subject of closer scrutiny than Germany. A number of attempts have been made during the year to account for the remarkable prosperity and efficiency of that country and its place in world diplomacy. *Monarchical Socialism in Germany*, by Elmer Roberts, gives a general account of the progressive paternalism of the kaiser and his ministers, and *Principles of Prussian Administration*, by H. G. James, describes in detail the official machinery used to that end. *Germany and Its Evolution in Modern Times*, by Henry Lichtenberger, a French view; *Germany to the Present Day*, by A. W. Holland; *Pan-Germanism*, by Roland G. Usher; *German Sea-Power*, by Archibald Hurd and Henry Castle; *Problems of Power*, by W. M. Fullerton; and the late Price Collier's frank and informing first-hand study, *Germany and the Germans*, are all books that demand notice.

The whole British empire is in constant process of change and development but nowhere so much as in England itself. *British Social Politics*, by Carlton H. Hayes, is an admirably compact and complete account of the many changes which the present Liberal government has made in British law since it was returned to power. The civilizing work of Great Britain in Egypt is told in Clayton S. Cooper's *The Man of Egypt*. A similar story of imperial development at the other extremity of the continent is the subject of *The Reconstruction of the New Colonies Under Lord Milner*, by W. B. Worsfold; *The Real South Africa*, by Ambrose Pratt; *The South African Scene*, by Violet R. Markham. On the war in Tripoli we have *Italy in North Africa*, by W. K. McClure, and *A War for a Desert*, by Francis McCullagh.

Of books concerned with the Western Continent, and falling properly under the present section, are: *The Coming Canada*, by J. K. Goodrich; *Alaska: An Empire in the Making*, by J. J. Underwood, a book of information as well as of narrative; ex-Ambassador James Bryce's *University and Historical Addresses* on American history; and Dr. Diomede Carito's *In the Land of Washington*, a study of the United States by an Italian. Our outlying dependencies also receive attention: *Hawaii, Past and Present: The Philippine Problem*, by Frederick Chamberlain; *The American Occupation of the Philippines*, by J. J. Blount, a plea for the abandonment of the islands; and *The Odyssey of the Philippine Commission*, by Daniel R. Williams. And the Panama Canal zone is a centre of liveliest interest, witness: Philippe Bunau-Varilla's *Panama: The Creation, Destruction and Resurrection; The Panama Gateway*, by Joseph B. Bishop, a very thorough and authorative book; and *Panama: Past and Present*, by Farnam Bishop. Latin America is treated in: *The Coming Mexico*, by Joseph K. Goodrich; *Mexico the Land of Unrest*, by Henry Baerlein; *The Republics of Central and South America*, by C. R. Enock; *Guatemala*, by C. W. Domville-Fife; *Across Unknown South America*, by A. H. Savage-Landor; *An Unknown People in an Unknown Land*, a study of the Gran Chaco region in central South America by W. B. Grubb; *To the River Platte and Back*, by W. J. Holland; *A Tour Through South America*, by A. S. Forrest; *Modern Chile*, an optimistic sketch, by W. H. Koebel.

POLITICS AND SOCIOLOGY. During the past year attention seems to have been especially concentrated on two or three fields of political and economic inquiry. One of these foci of interest is certainly the labor union, especially the newer type of labor union which is revolutionary in purpose and is organized by complete industries rather than by crafts. *The Spirit of Association*, by M. Fothergill Robinson, is a general plea for voluntary coöperation rather than legal enactment as a remedy for industrial evils; *Trade Unions*, by H. H. Schloesser, and *Trade Unions*, by Joseph Clayton, also aim at a broad survey of the whole situation. André Tridon's *The New Unionism* is an ardent defence of the syndicalist movement, which is as vigorously attacked by another Socialist, John Spargo, in *Syndicalism, Industrialism, Unionism, and Socialism*. The movement is treated in several other books of the year, including *Industrial Warfare*, by C. Watney and J. A. Little; *The Minimum Wage and Syndicalism*, by the Hon. James Boyle; *Syndicalism: a Critical Examination*, by J. Ramsay McDonald. An admirable exposition of the Socialist party and its position is contained in *Socialism Summed Up*, by Morris Hillquit. In *The Larger Aspects of Socialism*, W. E. Walling discusses many theories of sociology and ethics as they seem to relate to his subject. *Marxism versus Socialism*, by Professor Simkhovitch, shows how far modern Socialism has departed from the original doctrines of Karl Marx and expresses the opinion that changing economic conditions will force further reconstruction. The Socialist party is not the only one to find elucidation. The National Progressive party is championed in a volume of addresses by Theodore Roosevelt, collected under the title *Progressive Principles*, and S. J. Duncan Clark contributes a volume on *The Progressive Movement: Its Principles and Programme. The New Freedom*, by President Woodrow Wilson, is the text-book of progressivism within the Democratic party. Of American political essays, *Experiments in Government and the Essentials of the Constitution*, by Senator Elihu Root, is certainly one of the most important. It is a discussion of the needed legislative reconstruction necessitated by the growth of modern industry. Similar problems are faced by the veteran British scientist, the late Alfred Russell Wallace, in *Social Environment and Modern Progress*, although the remedies proposed are far more drastic. In the same connection should be considered *The Future of the Working Classes*, by R W. Babson; *The Worker and His Country*, by Fabian Ware; *Wealth and Welfare*, by Professor A. C. Pigou of Cambridge; and *Constructive Rural Sociology*, by John M. Gillette.

The flood of books on feminism that pour from the press—many of them remarkable for knowledge, intelligence, and skillful presentation of material—makes the output of works on other questions of modern sociology appear insignificant. Any brief selection will seem arbitrary, but we name the following: The anonymous study *The Woman with Empty Hands; The Old-Fashioned Woman*, by Elsie Clews Parsons; *The Unrest of Women*, by E. S. Martin; *Sex Antagonism*, by Walter Heape, and *The Truth About Woman*, by C. Gasquoine Hartley (Mrs. Walter Gallichan), two violently contrasting works on biological psychology; *The Man and the*

Woman, by Arthur L. Salmon; *The Nature of Woman*, by J. L. Taylor; *Way Stations*, a study of the English feminist movement by Elizabeth Robins; *Woman in Science*, by H. J. Mozans; a frenzied and violent work, *The Unexpurgated Case Against Woman Suffrage*, by Sir Almoth E. Wright; and a remarkable book by Frau von Mayreder, translated from the German, and entitled, *A Survey of the Woman-Problem*.

LITTLE, Joseph James. An American printer and publicist, died February 11, 1913. He was born in Bristol, England, in 1841, and moved to the United States with his parents when he was four years of age. Educated in the public schools, in 1855 he became a printer's apprentice at Morris, N. Y. Four years later he was employed as a compositor in New York City. He served throughout the Civil War, rising to the rank of first lieutenant in the 37th New York Volunteers. In 1867 he established the firm of J. J. Little and Company. Mr. Little took great interest in public affairs and was for many years a school commissioner of New York City. He was elected to the Fifty-second Congress, serving from 1891-93. In the same year he was a member of the World's Fair Commision.

LIVESTOCK. See Stock-Raising.

LLANDAFF, Henry Matthews, First Viscount. An English nobleman and public official, died March 27, 1913. In 1883 he was appointed home secretary in the cabinet of Lord Salisbury. Although he did not become prominent in this position he discharged the duties of his office with firmness and efficiency. When the Unionists came into power in 1895, he did not return to office, but was raised to the position of Viscount Llandaff.

LOAN AND TRUST COMPANIES. See Trust Companies; Banks and Banking; and Financial Review.

LOBBYING. See Electoral Reform.

LOCK JAW. See Tetanus.

LOCKOUTS. See Arbitration and Conciliation, Industrial; and Strikes.

LOCKROY, Etienne Auguste Edouard (Simon). A French journalist and statesman, died November 22, 1913. He was born in 1838. His father, an actor named Joseph Philippe Simon, took the name of Lockroy. From his earliest manhood he was engaged in the service of the state; he was also a soldier, and in 1860 joined Garibaldi's band of Italian volunteers which made a famous expedition into Sicily. In 1871 he was one of the electors of the Seine, who were sent to the National Assembly in February of that year. He was one of the founders of a daily paper called *La Municipalité*, which had for its object the regulation of the municipal councils of France. His most important rôle as a journalist, however, was played during the second Reign of Terror, when the empire was falling after the Franco-Prussian War. His vigorous style made him the chief propagandist of that period. M. Lockroy held portfolios in the cabinets of all the presidents from the founding of the republic.

LOCOMOBILE. See Steam Engine.

LOCOMOTIVES. See Internal Combustion Engines.

LOGIC. See Philosophy.

LONDON. See Great Britain, *Area and Population*, and *passim*.

LONGEVITY. See Marriage and Divorce under *Marriage and Longevity*.

LONGFELLOW, William Pitt Preble. An American architect, died August 3, 1913. He was born in Portland, Me., in 1836, and was the son of Stephen Longfellow, and brother of Henry W. Longfellow. Graduated from Harvard College in 1855, he afterward took postgraduate studies at that college. From 1869-72 he was assistant architect in the Treasury Department of the United States. He was adjunct professor of architectural design at the Massachusetts Institute of Technology in 1881-82. In 1893 he was chairman of the architectural section board of judges at the Chicago Exposition. He was the first editor of the *American Architect*. His published writings on architectural subjects include: *Abstract of Lectures on Perspective* (1889); *Cyclopedia of Architecture in Italy, Greece and the Levant* (1895); *The Column and the Arch, Architectural Essays* (1889); *Applied Perspective* (1901). He also contributed to magazines and reviews on architectural subjects.

LORD HARDINGE, Attempted Assassination of. See India, *History*.

LOS ANGELES AQUEDUCT. See Aqueducts.

LOUISIANA. Population. The population of the State in 1910 was 1,656,388. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 1,745,858.

Agriculture. The area, production, and value of the principal crops in 1912-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	1,900,000	41,800,000	$32,186,000
	1912	1,805,000	32,490,000	32,490,000
Oats	1913	45,000	990,000	564,000
	1912	34,000	707,000	361,000
Rice	1913	405,500,000	11,760,000	9,878,000
	1912	352,600,000	11,812,000	10,985,000
Potatoes	1913	25,000	1,750,000	1,680,000
	1912	20,000	1,460,000	1,212,000
Hay	1913	160,000	*a* 240,000	3,000,000
	1912	142,000	234,000	2,972,000
Tobacco	1913	600	*b* 270,000	68,000
	1912	500	150,000	45,000
Cotton	1913	1,126,000	*c* 400,000	22,389,000
	1912	929,000	361,128	20,678,000

a Tons. *b* Pounds. *c* Bales.

Mineral Production. The total value of the mineral proucts of the State in 1912 was $15,357,841, compared with $12,710,958 in 1911.

The Louisiana fields, with those of Texas, form the Gulf oil field. There were produced in the State in 1912 9,263,439 barrels of petroleum, compared with 10,720,420 barrels in 1911. There are three important fields in the State—the Jennings, Caddo, and the Vinton fields. Of these, the Caddo field is by far the largest producer. Its production of 1912 was 7,177,949 barrels. From the Jennings field were taken 1,105,711 barrels, and from the Vinton field 932,639 barrels. The total number of wells completed in the State in 1912 was 437.

Transportation. The total railway mileage of the State on June 30, 1912, was 6860, of which 3873 was main line, 1282 branches and spurs, 188 second track, 1414 yard track and sidings. The longest mileage is that of the St. Louis, Iron Mountain, and Southern Railway, 460. The Texas and Pacific Railway Company has 339, the Louisiana Railway and Navigation Company 312, the New Orleans, Texas, and Mexico Railroad Company 276, and the Kansas City, Southern Railway Company 245. These figures are for main track only. The total gross earnings for the lines in the State for the fiscal year ending June 30, 1912, amounted to $181,599,393.

Charities and Corrections. The charitable and correctional institutions under the control of the State, include the following: Louisiana Institute for the Blind, Louisiana State School for the Deaf, State Penitentiary—all at Baton Rouge; the Louisiana Industrial Institute at Ruston; the State Reform School at Monroe; the Louisiana Hospital for the Insane at Pineville; and the Asylum for the Insane at Jackson.

Politics and Government. A special session of the legislature convened on September 8 and adjourned on September 12, having called a special election for October 28 at which the people should vote upon a proposition to call a limited constitutional convention for November 10. The chief purpose of the convention was to permit the sale of bonds to refund the State bonded debt of $11,108,300, due January 1, 1914. The election was held on the date mentioned above, the convention proposition being overwhelmingly adopted and delegates to the convention being elected. The convention met November 10 and adjourned November 22, having rewritten and reënacted the constitution of the State. The chief changes were the bond section and amendments to the acts governing the sewerage and water board of New Orleans.

On December 8 an issue amounting to $10,567,470 of four and one-half per cent. fifty-year serial bonds, authorized by the new constitution, were sold by the State board of liquidation at 96,142. There were no other legislative sessions; and no other State-wide elections.

State Government. Governor, L. E. Hall; Lieutenant-Governor, T. C. Barrett; Secretary of State, Alvin E. Hebert; Auditor, Paul Capdeville; Treasurer, L. E. Smith; Attorney-General, R. G. Pleasant; Superintendent of Education, T. H. Harris; Commissioner of Agriculture, E. O. Bruner; Commissioner of Insurance, A. E. Hebert; Commissioner of Public Lands, Fred J. Grace—all Democrats.

Judiciary. Supreme Court: Chief Justice, J. A. Breaux; Associate Justices, A D. Laud, Walter B. Sommerville, Frank A. Monroe, O. O. Provosty; Clerk, Paul E. Mortimer—all Democrats.

State Legislature, 1913. Both houses Democratic. The State representatives in Congress will be found in the section *Congress*, article United States.

LOVE, Alfred Henry. An American merchant and peace advocate, died June 29, 1913. Born in Philadelphia in 1830, and educated in the schools of that city, he established very successfully a wool commission house in Philadelphia, but was best known as a peace advocate. For over fifty years he was president of the Universal Peace Union. During the Civil War he did much to support the "underground railway" used in bringing the slaves from the South, and with Mrs. Stowe and other prominent abolitionists, carried on the work and devoted much of his means to the abolitionist cause. After the war he continued his labors for the cause of peace, and worked sufficiently to support President Grant in his policies toward the Indians. In the Mason and Slidell controversy he took a leading part and worked for the settlement of the Alabama claims. With Belva Lockwood and the Baroness von Suttner he was an editor of the *Peace Maker*. He was a familiar figure at the Geneva and Hague peace conferences, and wrote and spoke much on peace and philanthropic subjects.

LOVEBURN, Lord. See Great Britain, *War or Conference*.

LOWE, Thaddeus S. C. An American aeronaut, died January 16, 1913. He was born in Jefferson, N. H., in 1832. When still a young man, his attention was attracted to the subject of balloons. He began to experiment in aeronautics; constructed several balloons while in the employ of the government, chiefly as an aid to the study of atmospheric conditions; invented several instruments for the determination of longitude and latitude without a horizon; and in 1858 he built the largest aerostat made up to that time. One of his earliest balloon flights was to a height of 23,000 feet, which far surpassed the previous record of those days. Soon after he announced his intention of crossing the Atlantic in a balloon and built one with a capacity of 725,000 cubic feet of gas. After several unsuccessful attempts to inflate the bag he gave up the plan. Soon after the beginning of the Civil War Dr. Lowe made several flights. One of these flights was from Cincinnati to the South Carolina coast, a distance of 900 miles, which he covered in nine hours. He was appointed chief aeronautic engineer of the United States army, and organized an aeronautic corps which gave valuable aid by observing the movements of the Confederate troops. In 1865 he invented a machine which made the first artificial ice in the United States. From 1891-94 he built the Mount Lowe Railway in the Sierra Madre Mountains.

LUDWIG III. OF BAVARIA. See Germany, *End of the Bavarian Regency*.

LUMINAL is a new hypnotic substance, phenyl-ethyl-barbituric acid, offered as a substitute for veronal, from which it differs in the substitution of one ethyl group (C_2H_5) for one phenyl molecule (C_6H_5). Luminal is a white, odorless, slightly bitter powder, almost insoluble in cold water, slightly soluble in hot water and readily soluble in alcohol, ether, and chloroform, and in alkaline solutions. It is claimed that the introduction of the phenyl group increases the hypnotic power of luminal over that of veronal. The drug has a sedative action on respiration, lessening the frequency of breathing, although the volume of each respiration is increased. It kills by respiratory paralysis. It is eliminated by the kidneys, a certain portion being probably decomposed in the organism. No injury to the kidneys or gastric disturbances have been observed. Luminal is claimed to be a useful hypnotic in nervous insomnia and conditions of excitement of the nervous system.

Luminal Sodium is a white crystalline, hygroscopic powder, readily soluble in water, and used for hypodermic injection.

LUNACY. See Insanity.

LUTHERANS. The Lutheran Church is the third largest Protestant denomination in the United States. In 1913 the confirmed or adult members numbered 2,376,579. There were 9162 ordained ministers and 15,739 congregations. For administrative purposes there were 65 district synods. The church property was valued at $92,747,509. For local expenses there were raised during the year $12,185,250, and for missions and benevolence $3,082,706. The bible and parochial schools which numbered 3514 had 1.041,304 pupils and 80,005 officers and teachers. The church is divided into four general bodies, and a number of independent synods. Details in regard to these are given below.

The General Council, organized in 1867, has 13 district synods; 1665 ordained ministers; 2535 congregations; 493,279 confirmed members; church property valued at $31,232,746; local expenses were $3,661,209, and for benevolence and missions $667,745.40. This branch of the church has a complete graded system for its bible schools which number 1803, with an enrollment of 298,834. In the 593 parochial schools the enrollment is 26,067.

The General Synod, organized in 1820, has 24 district synods; 1344 ordained ministers; 1790 congregations; 320,246 confirmed members. The church property is valued at $22,793,914. The income for local expenses was $2,794,810, and for missions and benevolence $546,532.10. In the 1732 Sunday schools there is an enrollment of 300,321.

The Synodical Conference, which is mainly German, was organized in 1872: 6 district synods; 2965 ordained ministers; 4722 congregations; 831,120 confirmed members. The estimated value of the church property is $17,890,000. The income for local expenses was $3.676,632, and for missions and benevolence $932,893.21. This branch has many strong parochial schools. The total number of such schools is 2800 with an enrollment of 152,090 pupils. In the 688 Sunday schools, the total registration is 155,889.

The United Synod of the South, which is organized on a basis very similar to that of the General Council dates from 1886: 8 district synods; 249 ordained ministers; 485 congregations; 50,819 confirmed members. The church property is valued at $2,345,181. The receipts for local expenses were $250,450, and for missions and benevolence $139,938.19. In the 408 Sunday schools, the majority of which are graded, there is a registration of 39,037.

The Independent Synods, to the number of 14, together with a few independent ministers and congregations, report 2935 ordained ministers; 6208 congregations; 672,150 confirmed members. Their church property is valued at $18,533,543. For local expenses but six of these synods have reported. These gave $1,813,987. The gifts for missions and benevolence were $798,440.01. In 1426 parochial schools there are 78,981 pupils, and in 2088 Sunday schools the registration is 327,860.

In anticipation of the 400th anniversary of the beginning of the Reformation by Martin Luther, October 31, 1517, the General Council resolved to raise a $2,000,000 jubilee fund and invited all Lutherans to coöperate and for their own missionary and institutional interests to raise from $5.000,000 to $10,000,000 as a "Quadricentennial Memorial of the Birth of Protestantism."

The year was notable for the planning and the raising of funds. Norwegians raised nearly $500,000 for their educational institutions; the Swedes raised $250,000 for Gustavus Adolphus College; the Iowa synod is raising $300,000 for theological and collegiate education; the Pittsburgh synod completed a $100,000 fund for Thiel College; and the Ministerium of Pennsylvania has quietly pushed its fund of $500,000 for educational work toward completion, meanwhile receiving two new endowments for professorships amounting to $90,000 for its Philadelphia Theological Seminary. The Synodical Conference is planning the erection of a national Lutheran university as a "Quadricentennial Memorial." Important actions looking toward coöperation and the arbitration of differences between the various Lutheran bodies were taken during the year. The General World's Conference met at Nuremberg in Germany in September. The General Council continues its membership in this General Conference and insists on a positive declaration of principles which will insure a world's conference of Lutherans on a true and historic confessional basis. (See also Religious Denominations and Movements.)

LUXEMBURG. An independent, neutral grand duchy, bordering Belgium, Germany, and France. The area is 2586 square kilometers (998 square miles). Population (December 1, 1910), 259,891 (134,101 males, 125.790 females). Roman Catholics numbered 250,543, Protestants, 4007, and Jews 1270. Natives of the grand duchy numbered 220,168; there were 21,762 Germans, 10,138 Italians, 3964 Belgians, and 2103 French. Luxemburg, the capital, had 20,848 inhabitants. Iron mining is an important industry. The grand duchy is included in the German customs union. Railway (1911), 525 kilometers; telegraphs (1912), 329 offices, with 701 kilometers of line and 2078 of wire; post offices (1912), 134. Revenue and expenditure in 1910, 17,700,805 and 16,977,796 francs respectively. The budget for 1913 (law of March 1 of that year) showed estimated revenue of 20.001.733 francs and estimated expenditure of 22,958.609 francs. Customs and direct taxes each supply about one-fourth of the revenue. The debt amounts to 12,000,000 francs; annuities, 493.150 francs. The Chamber of Deputies consists of 53 members, elected for six years by direct vote. The grand duke, William, died February 25, 1912, and was succeeded by his daughter, Marie Adelaide (born June 14, 1894), who was enthroned on attaining her majority, June 14, 1912. Her sister, Princess Charlotte (born 1896), is heiress-presumptive.

A concession ratified in 1913 enabled a Belgian and three German syndicates to exploit 582 rectares of mining land for a period of fifty years. In return the government was to receive an annual rent of from 2025 to 2725 francs per hectare, a total annual payment of over 1,000,000 francs.

LYNCH, Henry Finnis Blosse. An English traveler and writer on Middle East subjects, died November, 1913. He was born in London in 1862, and was educated at the University of Heidelberg and at Trinity College, Cambridge. After a brief experience in business life, he began his extensive travels in the Middle East, for the purposes of scientific, political, and commercial research. In 1888 he made the journey from Alexandretta, through the Aleppo and Diarbekir on horseback, and then down the Tigress on a raft to Bagdad. He subsequently inaugurated a new river service under the British flag on the Karun River, Persia. He made surveys for a new trade route into Persia, which was afterward known as the "Lynch Road." His next notable journey made about 1900, embraced the Caucasus and Armenia, and in a later journey in 1908 he made himself more thoroughly familiar with Armenia, surveying the great crater of Nimrud, and mapping the country. He took a great interest in social questions, and was associated with the work of Toynbee Hall. From 1906 to 1910 he sat in the House of Commons as a Liberal. He was a severe critic of the British foreign policy in Persia, and was a strong supporter of W. Morgan Shuster, the American treasurer-general of Persia, who was compelled to resign his office in 1911 on account of influence brought to bear by the Russian government. His published writings include, *Armenia: Travels and Studies* (2 volumes, 1901), and various articles in reviews and in proceedings of learned societies.

LYNE, Sir William. A Tasmanian public official, died August 1, 1913. He was born at Apslown, Tasmania, 1843, and at the age of twenty removed to Queensland, where he became a pioneer settler. In the following year he returned to Tasmania, and engaged in agriculture. He entered the Tasmania Parliament in 1880, and held various government posts after 1885. He was a member of the convention which framed the commonwealth constitution, and as premier at New South Wales it fell to him to superintend the arrangements for its inauguration. He was commissioned to form the first ministry of the new commonwealth. In 1903 he was created a K. C. M. G.

LYTTLETON, Alfred. An English statesman, died July 5, 1913. The eighth son of the fourth Lord Lyttleton, born in 1857. He was educated at Eton and at Trinity College, Cambridge. At the university he was notable as an athlete. After his graduation, he studied law, and from 1882-86 was legal private secretary to the attorney-general. In politics a Liberal he was a supporter of Mr. Gladstone, until the latter advocated home rule for Ireland. In 1900 he was chairman of the commission appointed to investigate the concessions granted in the Transvaal, during the rule of President Kruger. His work in this connection was very successful, and it led to his appointment in 1903 to the position of colonial secretary in Mr. Balfour's cabinet. In the defeat of January, 1906, he was one of the Unionist ministers who lost their seats, but who returned to Parliament a few months later from a precinct in London. He spoke often in Parliament, usually in opposition to the course of the government in South Africa, and on colonial questions and social problems in which he took a great interest. He was a member of many important government commissions.

McADOO, William Gibbs. An American lawyer and public official, Secretary of the Treasury in the cabinet of President Wilson. He was born in Marietta, Ga., in 1863; was educated at the University of Tennessee; and was admitted to the bar in 1885. For several years he practiced at Chattanooga and was for a time counsel for several railways and banking companies. In 1903 he removed to New York City and practiced there. He became interested in the problem of tunneling the Hudson River between the New Jersey and New York shores, and although several attempts had been made to accomplish this, which had resulted in failure, he persisted in his efforts until he succeeded in enlisting sufficient capital for the building and equipment of these tunnels. The project was finished in March, 1904, and Mr. McAdoo became president and director of the Hudson & Manhattan Railroad Company, which operated cars through these tunnels, in 1908. A company under Mr. McAdoo's directions afterwards built a fourth tunnel under the Hudson which was completed in March, 1909. Mr. McAdoo, although not strongly affiliated with any political party, was an ardent advocate of the nomination of President Wilson, and was one of the most efficient workers in the campaign which resulted in the election of the latter in November, 1912. He was a member of the Democratic national committee and for a time had general charge of the work of that committee in the campaign of 1912.

MACALISTER, James. An American educator, died December 11, 1913. He was born in Glasgow, Scotland, in 1840, and removed to the United States in 1850. He graduated from Brown University in 1856, and from the Albany Law School in 1864; engaged in teaching; and in a few years gained a wide recognition for his educational work. From 1874 to 1881 he was superintendent of the public schools in Milwaukee, and was regent of the Normal School of Wisconsin from 1878 to 1883. In the latter year he became the first superintendent of schools in Philadelphia, serving until 1891, when he was chosen president of Drexel Institute. He held this post until the spring of 1911, when he resigned. He lectured at Johns Hopkins University in 1893, and at the College of the City of New York in 1894. From 1885-87 he was a trustee of the University of Pennsylvania. He was made an *officier d'académie*, Paris, in 1890. He was the author of many books on educational subjects, among them: *Manual of Primary Instruction* (1884); *Manual of Instruction in United States History and Civil Government* (1887); *Art Education in the Public Schools* (1893). He also contributed to periodicals on educational subjects. He received the degree of LL.D. from Brown University in 1890.

McBURNEY, Charles. An American surgeon, died November 7 ,1913. He was born in Roxbury, Mass., in 1845. He graduated from Harvard University in 1866. He studied at the College of Physicians and Surgeons (Columbia), and took the degree of M. D. in 1870. From 1872 to 1889 he was assistant and demonstrator in anatomy at the College of Physicians and Surgeons. He was also lecturer on anatomy of nerves and surgery in the same institution. He was appointed professor of surgery in 1889, and professor of clinical surgery in 1892, serving until 1907. In the latter year he was emeritus professor of surgery. He was also visiting and consulting surgeon in several of the largest hospitals in New York City. Dr. McBurney was one of the best-known surgeons in the United States, and it is claimed for him that he was the first surgeon to cause a general recognition of appendicitis, and to establish the means of diagnosis and the character of treatment. He first called attention in 1889 to the localized tenderness since that time known as McBurney's point. This discovery brought a ready means of diagnosis, and is credited in having resulted in saving many thousands of lives. When President McKinley was shot, Dr. McBurney was called to attend him, and his efforts to save the life of the president were so great that his own health was impaired. In 1907, although he did not abandon his practice, he went to live in his country estate in the Berkshire Hills. He was a corresponding member of many foreign medical societies, and was a member also of many American societies connected with medical subjects. His contributions to surgical literature were many and important. The most notable were in connection with the subject of appendicitis.

McFARLAND, John Thomas. An American Methodist-Episcopal clergyman, died December 22, 1913. Born in Mt. Vernon, Ind., in 1851, he graduated from Simpson College in 1873; studied at Boston University, receiving the degree of D.D.; was ordained to the Methodist ministry in 1873; and filled pastorates in cities in Illinois, Iowa, Kansas and New York. His published writings include *Preservation vs. the Rescue of the Child; The Book of the Child; Etchings of the Master.*

MACGREGOR, James Gordon. A Scotch scientist and educator, died May 21, 1913. He was born in Nova Scotia in 1852 and was educated at the Free Church Academy at Halifax and at Dalhousie College, Halifax. He also studied at Edinburgh University, at the University of Leipzig and at London University. In 1876 he was made lecturer on physics at Dalhousie College. From 1877-79 he was lecturer on physics at Clifton College, Clifton, England, and from 1879-91 was Munro professor of physics at Dalhousie College. In the latter year he was professor of natural philosophy at the University of Edinburgh. Among his published writings were *Kinematics and Dynamics; Physical Laws and Observations;* and many scientific papers.

McGILL UNIVERSITY. An institution for higher education, founded at Montreal, Canada, in 1821. The students enrolled in all departments in the autumn of 1913 numbered 1893, of whom 510 were in the School of Arts. The faculty numbered 250. In 1913 Sinclair Laird was appointed head of the School of Teachers at Macdonald College, and associate professor of education. A. Campbell Geddes was appointed Robert Reford professor of anatomy. There were several other important additions to the faculty. During the year Sir William Macdonald donated $182,462 for the purchase of land adjoining Macdonald College, and for construction and equipment of additional buildings in the college. The productive funds amount to $6,839,000, and the income for the year 1912-13 was $711,838. The library contains 140,000 volumes. The principal is W. Peterson.

McLEAN, George Payne. United States senator (Republican) from Connecticut. He was born in Simsbury, Conn., in 1857; received his education in the public schools; in 1881 was admitted to the bar and practiced in Hartford; was a member of the State House of Representatives in 1883-84, and in 1885 he was a member of the commission to revise the Connecticut statutes. Elected a member of the State Senate in 1886, from 1892-96 he was United States district attorney for Connecticut. He became governor of the State in 1901. He was nominated for the Senate in the Republican party caucus by a vote of 113 to 64 for opposing candidates, and was elected by the General Assembly by a vote of 158 to 96. His term of service expires March 3, 1917.

McLELLAN, Peter Baillie. An American jurist, died May 8, 1913. He was born in Lindon, N. Y., in 1850; studied at Alfred University, from which he received the degree of Ph.B. in 1873, and Ph.D. in 1886; and in 1876 he was admitted to the bar. He became well known as a lawyer, and in 1892 was elected justice of the Supreme Court of New York for the term ending 1906. In 1907 he was reëlected for the term ending 1920. From 1898-1903 he was judge of the Appellate Division of the fourth department, and from 1904 to the time of his death was presiding justice of the Appellate Division.

McMURTRIE, William. An American chemist, died May 24, 1913. He was born in Belvidere, N. J., in 1851; studied at Lafayette College, from which he received the degree of E.M. in 1871, M.S. 1874, and Ph.D. 1875. From 1872 to 1879 he was assistant and chief chemist in the United States Department of Agriculture; from 1879-82 special agent in agriculture technology in that department. In the last named year he was appointed professor of chemistry at the University of Illinois. After serving in this position for six years, he resigned to become chemist of several corporations of New York City. From 1884 to 1888 he was chemist for the Illinois State board of agriculture, and from 1886-88 for the Illinois agricultural experiment stations. His published writings include: *Culture of the Beet and Manufacture of Sugar Therefrom* (1880); *The Culture of Sumac* (1880); *Grape Culture in the United States* (1883); *Wools and Other Animal Fibres* (1886-1901).

MACNAGHTEN, Sir Edward. First Baron Macnagthen. An English jurist, died February 17, 1913. He was born in 1830 in County Antrim, Ireland, and was educated at Trinity College, Cambridge. He studied for the bar and became a barrister and Queen's Counsel. In 1887 he was appointed lord of appeal-in-ordinary. Lord Macnaghten was at the time of his death probably the most prominent figure of the English bar. In the combination of literary gifts and legal learning he had few rivals.

McREYNOLDS, James Clark. An American lawyer and public official. Attorney-General in the cabinet of President Wilson. He was born in Elkton, Ky., in 1862; graduated from Vanderbilt University in 1882, and from the Law School of the University of Virginia in 1884. For many years engaged in private practice in Nashville, Tenn., he served at the same time as professor in the Law School of Vanderbilt University until 1893. He was appointed Assistant Attorney-General of the United States, and held that office until 1907, when he removed to New York City, and was many times specially retained by the United States government in matters relating to enforcement of the anti-trust laws, especially in proceedings against the tobacco trust and the combination of the anthracite coal railroads and others. At the time of his entering the cabinet of President Wilson he was in private practice in New York City.

MADAGASCAR. A great island in the Indian Ocean, off the east coast of Africa; a French colony, covering 585,300 square kilometers (225,984 square miles) and having a population (1913) of 13,198,889 (with dependencies, 3,293,552). Antananarivo (Tananarive) is the capital, with 72,000 inhabitants; Fianarantsoa has about 7000, Tamatave, 7026; Majunza, 4600. Madagascar is divided for administrative purposes into 19 provinces, 3 circles, and one autonomous district. The Hova is the dominant tribe. Agriculture is the leading industry and rice the staple native crop. Cattle-raising is important. The Europeans resident in the colony cultivate coffee, tobacco, sugar-cane, hemp, cotton, vanilla, tea, etc. The forest products are valuable. Sericulture is carried on. The mines yield gold, silver, iron, copper, lead, and zinc. Native manufactures include silk and cotton goods and raffia fabrics. Trade and finance statistics are given below in francs:

	1909	1910	1911
Imports	34,140,000	34,595,000	46,057,000
Exports	33,378,000	47,883,000	52,378,000
Budget	30,780,000	30,750,000	31,153,000

Tonnage entered in the 1911 trade, 427,000. Debt January 1, 1912, 98,220,000 francs. Of railways there are 368 kilometers. A railway connects Brickaville with the capital, with an extension from Brickaville to Tamatave. The Antananarivo-Tamatave line was completed early in 1913. Telegraph lines 7192 kms., wires 12,297; telephone lines, 1381 kms.; post offices, 171. The colony is administered by a governor-general—M. Picquié in 1913.

MADERO, Francisco I. See Mexico, *History*.

MAGNÚSSON, Eiríkr. An Icelandic scholar, died January 24, 1913. He was born in 1833 at Berufjord, in Iceland, and was educated at the Latin School at Reykjavik. He edited an edition of the Icelandic Bible from 1862 to 1866, and thus became connected with English scholars. For the rest of his life he lived in Cambridge, where he held the position of under-librarian at the university from 1871 to 1910. For many years he lectured on Iceland at the university. He was in the first rank of Icelandic scholars, and many of his writings, especially his contributions to the elucidation of early poems, are of permanent value. Few, if any scholars, have done so much to advance the study of Old Norse literature.

MAINE. Population. The population of the State in 1910 was 742,371. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 757,936.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	16,000	608,000	$ 529,000
	1912	16,000	640,000	480,000
Wheat	1913	3,000	76,000	77,000
	1912	3,000	70,000	72,000
Oats	1913	140,000	5,600,000	8,080,000
	1912	133,000	4,602,000	2,347,000
Potatoes	1913	128,000	28,160,000	14,925,000
	1912	117,000	23,166,000	12,741,000
Hay	1913	1,194,000	[a] 1,194,000	16,597,000
	1912	1,231,000	1,428,000	19,564,000

[a] Tons.

Mineral Production. The mineral products of the State are relatively unimportant. The principal product is granite, in which it ranks third among the States, being exceeded by Vermont and Massachusetts. More than half of the granite is used for building and monumental purposes. The State also produces some limestone, most of which is used by paper manufacturers. Slate is produced in considerable quantities. Other commercial minerals produced are clay, gem materials, mineral waters, and sand and gravel. The total value of the mineral products in 1912 was $3,925,526, compared with $4,645,630 in 1911.

Education. The total enrollment in the public schools of the State in 1913 was for elementary schools 127,045, and for secondary schools 12,199. The average daily attendance in elementary schools was 98,152, and secondary schools 11,211. The male teachers in elementary schools numbered 503, and in the secondary 250. Female teachers in the elementary schools numbered 6435, and in the secondary schools 420. The average yearly salary for male teachers was $704.24, and for female teachers $353.69. The legislature of 1913 passed several measures of importance relating to education. One of these was an act to provide for the State certification of all teachers of public schools, and another provided for the retirement of teachers of long service with pensions. Other amendments to existing laws made provision for improved methods of keeping and reporting school accounts and attendance statistics; for uniformity in the dates beginning and ending school years; and for the better enforcement of child labor laws.

Transportation. The total mileage of steam roads in the State in 1913 was 2301. The most important lines of mileage are the Main Central Railroad Company, 992; the Bangor and Aroostook Valley Railroad Company, 630; the Canadian Pacific Railway, 178; the Boston and Maine Railroad, 139; and the Sandy River and Rangeley Lake Railroad, 105. During the year there were constructed for the Aroostook Valley Railway 17 miles of track. The mileage of street railways in the State in 1913 was 492.

Finance. There was a balance in the treasury on January 1, 1912, of $502,202. The receipts for the fiscal year ending January 1, 1913, were $5,321,711, and the expenditures were $5,366,785, leaving cash on hand on December 31, 1912, $457,128. The chief receipts are from taxation, and the chief expenditures are for State institutions, education, and State officers. The bonded indebtedness of the State on January 1, 1913, was $269,000.

Politics and Government. The legislature met in 1913; the measures passed are noted in the section *Legislation*, below. There was no election for State officers during the year, as the term of Governor Haines and the other State officers does not expire until January, 1915. The next State election will be held on September 7, 1914. On January 15 the legislature elected Edwin C. Burleigh United States Republican senator, to succeed Obadiah Gardner, Democrat, whose term expired March 4. Senator Burleigh was elected by a coalition of Republican and Progressive members of the legislature. Municipal elections were held on March 3 and on March 10. In those held on the first date, the Democrats were in the main successful, while in those held on March 10, Republicans and Democrats were about equally successful. On September 8 an election was held for a representative to Congress, to fill the vacancy caused by the death of Forest Goodwin (q.v.). There were three candidates—John A. Peters, Republican; Willard R. Pattangall, Democrat; and Edward L. Lawrence, Progressive. The election was of more than local interest, as it presented an opportunity to compare the relative strength of the Progressive party in 1912-13. That local interest was strong was shown by the fact that more voters participated in this election than in the presidential election of November, 1912. The Republican candidate was elected by a plurality of 500 over the other two candidates. The vote was: Peters, 15,068; Pattangall, 14,580; Lawrence, 6515. This represented a decerase of 50 per cent. in the Progressive vote, and an increase of nearly 108 per cent. in the Republican vote, while the Democratic vote remained practically the same as in the previous election. The Democratic candidate attributed his defeat to Democratic treachery. He declared that, "because certain men failed of success in the primaries, they deliberately sacrificed the patry in this election." The Progressives attributed their defeat to a lack of campaign funds.

Legislation. Two important measures passed by the legislature in 1913 were an anti-trust act and a public utilities act, patterned after the Wisconsin statute. Other measures passed by this session were chiefly of local interest and importance. See also Liquor Regulation.

State Government. Governor William T. Haines; Secretary of State, J. E. Alexander; Treasurer, Joseph W. Simpson; Adjutant-General, Albert Greenlaw; Auditor, T. F. Callahan; Attorney-General, Scott Wilson; Superintendent of Public Schools, Payson Smith; Insurance Commissioner, J. Wallace Blunt; Commissioner of Agriculture, John A. Roberts; Land Agent and Forest Commissioner, Blaine S. Viles; Bank Commissioner, H. M. Smith; Chairman Highway Commission, L. H. Nelson;—all Republicans; Chairman Board of Assessors, B. G. McIntire, Dem.; J. S. P. H. Wilson, Chairman Fish and Game Commission, Dem.

Judiciary. Supreme Judicial Court: Chief Justice, Albert R. Savage, Republican; Associate Justices: L. C. Cornish, Rep.; Albert M. Spear, Rep.; G. E Bird, Dem.; A. W. King, Rep.; George F. Haley, Dem.; George M. Hanson, Dem.; and Warren C. Philbrook, Rep. Reporter of Decisions, W. P. Thompson.

MAINE, University of. A State institution tion of higher learning at Orono, Me., founded in 1865. The university includes agricultural, engineering, and academic departments. The enrollment in all departments in 1913 was 1055. The faculty numbered 126. The university received about $20,000 in benefactions during the year. The income is about $225,000 yearly. The library contains about 50,000 volumes, and 10,000 pamphlets. The president is R. J. Aley, LL.D.

MAJOR, Charles. An American author, died February 13, 1913. He was born in Indianapolis in 1856, and was educated in the common schools of Shelbyville and Indianapolis. He studied law, and after his admission to the bar engaged in the practice of law at Shelbyville. His first novel, *When Knighthood Was in Flower*, published in 1898, was one of the chief literary successes of that and the following year. It was also dramatized and successfully played by Julia Marlowe. This was followed by *The Bears of Blue River* (1900); *Dorothy Vernon of Haddon Hall* (1903); *Yolanda, Maid of Burgundy* (1905); *A Gentle Knight of Old Brandenburg* (1909); *A Little King* (1910).

MALACCA. See Straits Settlements.

MALAY STATES. See Federated Malay States.

MALTA. A British crown colony, composed of the islands of Malta (91½ square miles), Gozo (25⅚), Comino (1), Filfla and Cominotto (mere islets). Total population, exclusive of military (census 1911), 211,564. Valletta (44,143 inhabitants with suburbs) is the capital; it is a coaling station and trade centre. The climate is agreeable, especially in winter; mean temperature, 64.6°; mean annual rainfall, 20 inches. The soil is intensively cultivated, but the products are insufficient for the support of the increasing population. The people are extremely industrious and thrifty. There are 7¾ miles of railway. Total imports for home consumption in 1911-12, £2,615,519; exports, £987,844. Total weight of transshipped goods, 14,662 tons. Total value of dutiable imports, £1,145,264 (£1,026,567 in 1910-11). Revenue (1911-12), £448,114 (£441,444 in 1910-11); expenditure, £467,783 (£467,373); shipping entered and cleared, 8,240,820 tons (8,667,037). of which 4,443,492 tons British (4,796,133). Gen. Sir H. M. L. Rundle (appointed 1909) was governor in 1913.

History. When Mr. Asquith, the British premier, visited Malta in May, 1913, he received a deputation of leading citizens and heard their request for a constitutional revision which would give Malta a greater measure of autonomy. Early in October Mr. Harcourt replied that after careful consideration, the British government had failed to discover sufficient grounds to justify a change in the constitution, but would be willing to approve the experimental adoption of recommendations made by Lieutenant-Governor Sir John Clauson.

MAMMALS. See Zoölogy.

MANCHURIA. A Chinese dependency, lying east of Mongolia and Chihli and between Korea and the Amur River, which separates it on the north from Siberia. The capital is Mukden.

The area of Manchuria is estimated at 362,483 square miles. Various estimates of the population have been made; the figure derived from the enumeration of households made in 1910 is 12,742,360. This number, however, is exclusive of children under six years of age; including these children, the estimated population becomes about 13,104,000. Manchuria consists of three provinces; their area and their population are stated as follows (the population figures are derived from the 1910 enumeration, and in parentheses are given the totals including the estimated number of children under six): Heilungkiang, 202,703 square miles, 1,562,254 inhabitants (1,607,000); Kirin 105,019 square miles, 5,349,287 inhabitants (5,501,000); Shangking, 54,761 square miles, 5,830,819 inhabitants (5,996,000). The capital of Heilungkiang province is Tsitsihar, with an estimated population of 30,000; the capital of Kirin province is Kirin, with a population variously stated, some estimates being as high as 100,000; capital of Shengking province, Mukden, with an estimated population of 158,000. Other important towns are: Kwangchengtze (Changchun), 80,000; Antung, 161,000; Newchwang (Yingtze), at the mouth of the Liao River, 61,000; Newchwang City (30 miles up the Liao), 50,000; Liaoyang, 67,000; Sinminfu, 42,000; Harbin, 35,000; Tiehling, 28,500; Fenghwangcheng, 25,000; Fakumen, 19,500.

In the southern part of Shengking, occupying the end of the Liaotung Peninsula and containing Dairen and Ryojun (Port Arthur) is Kwantung (1221 square miles) held by Japan under a lease transferred from Russia at the close of the Russo-Japanese War. (See Kwantung.) Outside of Kwantung, Manchuria is virtually divided into Russian and Japanese "spheres of influence." The Russian sphere is much the larger, extending south to the Japanese sphere at Kwangchengtze, the southern limit of the Russian railway from Harbin, which connects with the Japanese railway from Ryojun and Dairen. Another Japanese railway runs from Mukden to Antung, on the Yalu River, connecting there with the Korean railways. At the beginning of 1912 the total length of railway in operation in Manchuria was about 2182 miles.

Much of Manchuria is a fertile agricultural country, the chief products being soy beans, Kafir corn, millet, corn, barley, and tobacco. China's large bean export is derived chiefly from Manchuria. There is some mining of iron and coal. Figures for the foreign trade include that of Kwantung, and the whole is included in the foreign trade of China. In the direct foreign trade, imports and exports at the Manchurian open ports in 1911 were valued at 54,052,669 and 67,954,165 haikwan taels, respectively. Financial statistics of Manchuria are not available. Governors of the three provinces in 1913: Heilungkiang, Pi Kŭei-fang (*ad int.*); Kirin, Ch'i Yao-lin (*ad int.*); Sheng-king, Chang Hsi-lŭan.

MANITOBA. A province of the Dominion of Canada. Area, 73,732 square miles; population (census of June 1, 1911), 455,614 (255,211 in 1901). Including that portion of the northwest territories annexed to Manitoba in 1912, the area is 251,832 square miles and the population, 461,630. Winnipeg is the provincial capital, with 136,035 inhabitants in 1911. A lieutenant-governor administers the province—Douglas Colin Cameron in 1913 (appointed August 1, 1911). Premier in 1913, Sir Rodman P. Roblin. See section so entitled under Canada, Dominion of.

MANN, Tom. See Socialism, *Great Britain.*

MANOUBA. See Arbitration, International.

MANUFACTURES. See United States, the various States of the United States, and other countries, under section so entitled.

MARATHONS. See Cross-Country Running, *Marathons.*

MARBLE, John Hobart. An American publicist and public official, died November 21, 1913. He was born in Ashland, Neb., in 1869, and was educated in the public schools and at the University of Nebraska. He studied law, and in 1903 was admitted to the bar. For three years following he practiced in Philadelphia. He was attorney in charge of the division of inquiry of the Interstate Commerce Commission from 1906 to 1912, and secretary of the commission from 1912 until his appointment in 1913 as a member of the commission to succeed Franklin K. Lane (q.v.), who was attorney to the commission of the United States Senate which investigated the election of William Lorrimer as senator from Illinois.

MARCONI CASE. See Great Britain.

MARITAL CONDITION AND MORTALITY. See Vital Statistics, and Marriage and Divorce.

MARKETING. See Agriculture.

MARRIAGE AND DIVORCE. United States. Those results of the Thirteenth Census comprising the data regarding population were published in 1913. They showed that, contrary to the popular understanding marriage is becoming more, rather than less, general, and that, when the whole population is considered, there is no general tendency for marriage either to be avoided or to be postponed. A comparison of the conjugal condition of the total population in 1890 and in 1910 showed that the proportion of single persons had diminished from 59.3 per cent. to 55.4 per cent. during that twenty years; at the same time the proportion of married had increased from 35.7 per cent. to 38.9 per cent. The proportion of widowed increased slightly in these two decades. When attention is focused upon persons fifteen years of age and over similar results are found. Thus the proportion of males of these ages who were single decreased from 41.7 per cent. in 1890 to 40.2 per cent. in 1900, and 38.7 per cent in 1910. The proportion of females of these same ages who were single diminished from 31.8 per cent. in 1890 to 29.7 per cent. in 1910. The proportion of males of these ages who were married increased from 53.9 per cent. in 1890 to 55.8 per cent. in 1910; and the like change for females was 56.8 per cent. to 58.9 per cent. That these tendencies are not localized but general throughout the nation is shown by the fact that they manifest themselves in each of the nine divisions of States and in nearly every State.

Two probable causes for these unexpected changes have been advanced. In the first place the decline in the birth rate, being accompanied by smaller proportion of children, has increased the percentage of the population of marriageable age. In the second place the great volume of immigration, bringing in a population with lower standards of living and a consequent tendency to marry early, has more than offset the tendency among the professional classes to marry at later ages. Moreover the increase in the proportion of urban population, which would ordinarily result in a decrease in the proportion of married, may have been likewise offset by the increase in immigration. It is possible, moreover, that these are only partial explanations and that even when account is taken of them an increased tendency to marry would be found, for it is a well-known statistical fact that in France where the birth rate scarcely balances the death rate marriages are contracted at earlier ages and a larger proportion of the population is married than in some neighboring nations where the population is increasing. Marriage, therefore, is not so clearly, as formerly, correlated with the birth rate.

The Federal census of 1910 also showed that instead of a tendency to postpone marriage there is an opposite tendency. Thus the percentage of males of ages 20-24 who were married was 18.9 in 1890, 21.3 in 1900, and 24.1 in 1910. Even in the age group 15-19 the percentage of married had increased from 0.5 in 1890 to 1.1 in 1910. Among females the percentage in the age group 15-19 married was 9.5 in 1890, 10.9 in 1900, and 11.3 in 1910; in the age group 20-24 the figures for the three censuses were respectively 46.7, 46.5, and 49.7. In the age groups above 35 years there have been only slight changes, but these were in the direction of a smaller proportion of married among both sexes. While, therefore, early marriages are more common among both sexes than they were twenty years ago, the increase in the proportion of those married is almost entirely confined to ages under 35 for men and under 25 for women.

Marriage and Longevity. Much attention was given to a new statement of the long-established fact that married persons have a lower death rate than single, widowed, or divorced persons of the same ages. Prof. Walter F. Wilcox, from New York State and Federal census data, showed this rule to hold for men of all ages from 20 to 80 and over, except the very highest, and for women of all ages except the age group 20 to 30. Thus for ages 20 to 30 the death rate for single men is 6.6 per 1000, and for married men, 4.2; in the age group 30 to 40 the respective rates are 13 and slightly less than 6; for ages 40 to 50 they are 19.5 and 9.5 respectively. Even larger differences were found in the age groups 50-60 and 60-70. The cessation of marriage by the death of the mate or by divorce affects the death rates very adversely, as the rates of widows and divorced persons are even higher than those of single persons.

The Commission on Uniform State Laws, which is composed of representatives from 48 States and Territories has drawn up a uniform marriage evasion act whose adoption is being urged upon State legislatures. It was passed by Massachusetts in 1913 and approved by the American Bar Association. In recent years the great diversity of State laws has given rise to much confusion of conjugal conditions, mainly through the fact that a marriage legal in one State may not be upheld by the judicial authority in another. The proposed law would prevent fraud upon the courts committed by persons who go to a State other than that in which they reside, contract a marriage and then return to their own State. It would also serve as a protection for innocent parties who have presumed themselves legally married, but on account of divergencies in divorce procedures have found their supposed marriage illegal.

The triennial general convention of the Protestant Episcopal Church meeting at New York in October gave considerable attention to the marriage-divorce problem. A joint commission was appointed to inquire into the *Ne Temere* decree of the Catholic Church. In addition a committee of nine was appointed to coöperate with the international commission on marriage and divorce. The latter plans to hold an international congress in the United States in May, 1915. One of the prime purposes will be to secure the enactment of a uniform divorce law.

Eugenic marriage laws have followed the recent awakening of popular interest in the subject of race preservation. At the opening of 1913 thirty-four States had laws forbidding marriage of insane, lunatic, and those incapable of consent; fifteen forbade marriage of idiotic; nine of epileptic; eight of imbecile and feebleminded; two of habitual drunkards; and four had laws relating to persons suffering from venereal infection. Besides various minor enactments three States, Oregon, Pennsylvania, and Wisconsin, passed laws of a summary character. The Oregon law required that ten days previous to the issue of a marriage license the prospective husband must file a physician's certificate stating under oath that the former was free from contagious, venereal diseases. The law fixed the physician's fee at $2.50 and punished him with loss of his own license in case of false certification. The Wisconsin act was much more stringent in that it required laboratory tests of a highly scientific character in order to determine freedom of the blood from venereal germs. Severe penalty for falsification was provided for the physicians and public officers having the execution of the law in charge. Persons leaving the State to marry and returning within one year were required to submit to the usual examination. The Pennsylvania law required the answering of numerous questions, including a score of very personal ones. It forbade the issuance of marriage licenses to persons with communicable diseases, imbeciles, epileptics, degenerates, persons under guardianship, those of unsound mind, those under the influence of liquor or narcotics, and first cousins. Moreover, a man was required to show that he could support a family. These laws excited much comment, favorable and adverse; while they may be largely nullified for various reasons, they doubtless serve as forerunners of more extensive efforts to prevent racial degeneration through the unchecked multiplication of defective stocks.

GREAT BRITAIN. Since the submission of the report of the Royal Commission on divorce and matrimonial causes, in November, 1912, the whole subject has been discussed from every possible angle throughout the British Isles. The majority of that commission had favored a considerable extension of the grounds for divorce and an increase in the judicial facilities for securing divorce. The minority, on the other hand, favored divorce only on the Biblical ground, contending that marriage is a sacrament and therefore essentially indissoluble. In the discussion through the year the extreme viewpoints were represented by those who held the narrowest churchly position and those who, on the other hand, advocated divorce by mutual consent of both parties. Those less extremely liberal advocated divorce by mutual consent subject to provision for delay and for proper financial safeguards. While some held that an extension of the grounds of divorce would increase immorality, others held that failure to facilitate divorce would increase immorality, since the only alternative would then be for one or other party to commit such an offense as would secure a divorce on statutory grounds.

Among the measures advocated to strengthen marriage and check divorce were laws to prevent the formation of improvident and reckless marriages. Laws were advocated to give the wife and children an inalienable right to some proportion of the husband's estate at his death, and the husband and children a similar claim in case of the wife's death. Moreover it was contended that divorce should be treated as having the same effect as death in this regard. In this manner it was contended effective financial responsibility would be enforced upon both parties.

MARSHALL, HUGH. A Scotch chemist and educator, died September 6, 1913. He was born in Edinburgh in 1868 and was educated at the Universities of Edinburgh, Munich, and Ghent. In 1887 he was appointed assistant in chemistry at the University of Edinburgh; in 1894 lecturer on mineralogy and crystallography; and in 1902 lecturer on chemistry. He wrote many papers on chemical and crystallographical subjects.

MARTIN, Bradley. An American banker, died February 5, 1913. He was born at Albany, N. Y., in 1841, and graduated from Union College in 1863. After graduation he saw service for a time in the Civil War, becoming first-lieutenant of the ninety-third regiment of the national guard. At the close of the war, he was admitted to the bar, but never practiced law, devoting himself to the management of a rapidly-accumulating fortune, resulting from his banking interests, and his interest in trust companies and industrial corporations. He took a prominent part in social life in New York, and in that connection attained a pinnacle of conspicuity through his famous costume ball, which was one of the most elaborate functions in the history of New York City. In 1893 he removed to England, where he remained during the remainder of his life.

MARTIN, Lewis J. Representative in Congress from New Jersey, died May 5, 1913. He was born in Deckertown, N. J., in 1844, educated in the common schools, and admitted to the bar, practicing his profession until he was appointed chief clerk in the office of the county clerk of Sussex County. He was a member of the New Jersey House of Assembly from 1878 to 1881 and from 1881 to 1896 was law judge of Sussex County. In 1911 he was appointed county judge by Governor Wilson. In 1897 he was elected to the State Senate and was reëlected in 1900. He served as minority leader during the sessions of 1899-1902. He was elected to the Sixty-third Congress in 1912.

MARTINIQUE. An island of the lesser Antilles, a French colony. Area, 987 square kilometers (381 square miles). Population (1911), 184,084. The capital is Forte-de-France, with about 27,000 inhabitants. The imports in 1911 were valued at 19,855,000 francs and the exports at 22,583,000 (France, 10,707,000 francs imports and 20,914,000 exports). Vessels entered 88, of 156,000 tons. The 1911 budget balanced at 7,054,000 francs, and the debt amounted, January 1, 1912, to 4,511,000 francs. The governor in 1913 was M. Gajan.

MARYLAND. Population. The population of the State in 1910 was 1,295,346. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 1,330,209.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	670,000	22,110,000	$14,372,000
	1912	670,000	24,455,000	13,450,000
Wheat	1913	610,000	8,113,000	7,221,000
	1912	599,000	8,985,000	8,536,000
Oats	1913	45,000	1,260,000	605,000
	1912	45,000	1,350,000	608,000
Rye	1913	27,000	389,000	296,000
	1912	27,000	418,000	334,000
Potatoes	1913	43,000	3,741,000	2,506,000
	1912	37,000	4,144,000	2,404,000
Hay	1913	390,000	[a] 491,000	7,463,000
	1912	381,000	575,000	8,280,000
Tobacco	1913	25,000	[b] 18,500,000	1,720,000
	1912	26,000	17,160,000	1,373,000

[a] Tons. [b] Pounds.

Mineral Production. The total value of the mineral products of the State in 1912 was $10,916,671, compared with $9,386,515 in 1911. The total production of coal in the State in 1912 was 4,964,038 short tons, valued at $5,839,079. Compared with the production of 1911, this was a gain of 278,243 short tons. The coal production in 1913 was estimated by the United States Geological Survey as approximately the same as in 1912. In 1912 there were 6162 men employed in the coal mines, compared with 5381 in 1911. According to United States Bureau of Mines, there were 13 men killed in the coal mines during 1912, compared with 11 in 1911. Nine of the fatalities in 1912 were due to falls of roof. The clay products of the State in 1912 were valued at $1,865,753, an increase of $93,319 over 1911. The principal clay product is common brick. The State produces a small amount of copper. In 1912 this amounted to 53,043 pounds of blister copper, compared with 23,559 pounds in 1911. The production was from the New London district of Frederick County.

Education. The school population of the State between the ages of five and twenty years, in 1913, was 415,908. The total enrollment in public schools was 237,125, and the average daily attendance 155,007. The total number of teachers was 5805. Nine hundred and six were males, and 4899 females. The average yearly salary for teachers both male and female was $537.59. The total expenditures for education during the school year was $75,326,876.

Finance. The report of the comptroller of the treasury shows receipts for the fiscal year 1913, $10,720,082. There was a balance at the beginning of the year of $1,826,229. The disbursements for the same period amounted to $11,070,356, leaving a balance in the treasury on September 30, 1913, of $1,475,956. The chief expenditures are for State institutions, education, and State officers, and the chief receipts are from taxation. The net funded debt of the State at the end of the fiscal year was $8,390,942.

Communications. The total railway mileage in the State on June 31, 1912, was 1377.14. The longest mileage is that of the Baltimore and Ohio, 336. Philadelphia, Baltimore, and Washington had 324; the Western Maryland, 221; the Baltimore, Chesapeake, and Atlantic, 87. This mileage given is for single track only. The mileage of single track electric railways in the State on December 31, 1912, was 721.

Charities and Corrections. The State institutions are the Maryland Hospital for the Insane, the Springfield State Hospital, the Maryland Asylum and Training School for Feeble-minded, the Maryland School for the Deaf and Dumb, and the Maryland Tuberculosis Sanatorium. There are, in addition, many hospitals and asylums, carried on under local and private auspices. The State institutions are under the direct control of the board of State aid and charities, and this board has a supervisory control over many other institutions.

Politics and Government. There was no session of the legislature in 1913, the sessions being biennial and beginning the first Wednesday in January of the even years. There was a general election in November at which members of the House of Delegates and half the Senate were elected for the session of January, 1914. In addition to these, State officers, with the exception of governor and attorney-general, were also elected. The terms of the present governor, P. L. Goldsborough, Republican, and of Atty.-Gen. Edgar Allen Poe, Democrat, end, the former in January, 1916, and the latter in November, 1915. This election of November, 1913, was of exceptional interest because the first election in the State of a Federal senator under the new amendment to the constitution took place. Upon the death of Senator Rayner in 1912, the governor appointed William P. Jackson to fill the place until an election by the legislature which would have taken place in the session of 1914. In the meantime the amendment for the election of senators by the people had been ratified by the States. Governor Goldsborough issued a warrant for the election of a senator by the people at the November election, although the legislature had passed no special law providing the machinery and method for nomination and election of senators. The governor, acting under the advice of the attorney-general, decided this could be done under existing general laws. Under this warrant the Democrats nominated Blair Lee, the Republicans Thomas Parran, and the Progressives George L. Wellington. Lee was elected by a large majority, as were other Democratic candidates, due in part to the division of the Republican party by the Progressive movement. In behalf of Senator Jackson, the points above alluded to were raised later on, against the seating of Mr. Lee in the Senate but were overruled, and Mr. Lee was seated in January, 1914. Mr. Lee is a Democrat of the Progressive type, and his election was favored, it was understood, by President Wilson, and Secretary W. J. Bryan, a personal friend of Mr. Lee, who came into the State and made two speeches in his behalf. For this he was criticised by the Anti-Saloon League, which was opposing Mr. Lee. In the November election, the Democrats elected a two-fifths majority in both houses of the General Assembly, sufficient to override the executive veto. Six amendments to the State constitution were ratified, the most interesting being one to empower the legislature to put the penalty for bribery at elections upon the buyer of votes as well as seller.

In material progress, the year 1913 was notable in Maryland. The State government, through a special commission, progressed rapidly in the construction of a system of State roads, many million dollars having already been spent.

State Government. Governor, Phillips L. Goldsborough, Rep.; Secretary of State, R. P. Graham, Rep.; Treasurer, Murray Vandiver, Dem.; Adjutant-General, C. E. Macklin, Rep.; Attorney-General, Edgar Allan Poe, Dem.; Superintendent of Education, M. B. Stephens, Dem.

Judiciary. Court of Appeals: Chief Judge, Andrew H. Boyd; Associate Judges, N. Charles Burke, William H. Thomas, John R. Pattison, Hammond Urner, John P. Briscoe, Henry Stockbridge, and Albert Constable; Clerk, Caleb C. Magruder, all Democrats except Stockbridge and Urner, Republicans.

State Legislature, 1913. Democrats: Senate, 18; House, 80; joint ballot, 98. Republicans: Senate, 9; House, 22; joint ballot, 31. Democratic majority: Senate, 9; House, 58; joint ballot, 67.

The State representation in Congress will be found in the section *Congress*, article United States.

MASSACHUSETTS. Population. The population of the State in 1910 was 3,366,416. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 3,548,705.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	48,000	1,944,000	$1,652,000
	1912	47,000	2,115,000	1,629,000
Oats	1913	9,000	315,000	170,000
	1912	8,000	272,000	128,000
Rye	1913	3,000	56,000	55,000
	1911	3,000	48,000	46,000
Potatoes	1913	27,000	2,835,000	2,410,000
	1912	26,000	3,380,000	2,535,000
Hay	1913	475,000	*a* 575,000	12,132,000
	1912	477,000	596,000	12,814,000
Tobacco	1913	6,100	*b* 9,455,000	1,986,000
	1912	5,800	9,860,000	2,357,000

a Tons. *b* Pounds.

Mineral Production. The value of the clay products in 1912 was $1,766,166, an increase of $66,879 over 1911. The chief clay product is common brick.

Education. The total number of pupils of all ages in the public schools in the school year 1913 was 557,211. The average membership in all the schools was 501,983. The average attendance was 466,689. The male teachers numbered 1687 and the female 15,292, or a total of 16,979. The legislature of 1913 enacted many important measures relating to education. One of these provided for the establishment and maintenance of continuation schools and a course of instruction for working children. The board of education made investigation into the needs of the part-time school, vocational or otherwise, for working children, and presented a report to the legislature for the needs and possibilities for part-time schooling, for which the above act makes provision. Other measures provided for regulating the school attendance of minors, and provided for a retirement system for teachers.

Charities and Corrections. The institutions under the supervision of the State board of charity are the State Infirmary at Tewksbury, the State Farm at Bridgewater, the Norfolk State Hospital, the Lyman School for Boys at Westborough, the Industrial School for Boys at Shirley, the State Industrial chool for Girls at Lancaster, the Massachusetts Hospital School at Canton, the North Reading State Sanatorium, the Rutland State Sanatorium, the Lakeville State Sanatorium, and the Westfield State Sanitorium. The total number of persons under care of these institutions in 1913 was about 20,000, and the cost of maintenance is about $1,500,000 yearly. The board of prison commissioners has charge of State prisons. These include the State Prison in Boston, the Massachusetts Reformatory at Concord, the Reformatory for Women at Sherborn, Prison Camp and Hospital at Rutland, and the State Farm at Bridgewater. The prison population at the end of 1913 was about 6000.

Transportation. The total railway mileage in the State in January, 1913, was 4892. Of this, 2110 was of main lines; 1075 second, third, and fourth track; and 1707 side tracks. There was practically no construction of railways during the year.

POLITICS AND GOVERNMENT. The legislature met in 1913 and passed a number of important measures which are noted in the section *Legislation* below. The decision of Senator Crane, whose term expired on March 4, 1913, not to be a candidate for reëlection, made it necessary for the legislature to choose his successor. The two principal candidates were Congressman Samuel W. McCall and Congressman John W. Weeks. McCall was, during his term in Congress, one of the strongest members of the House, though his conservative tendencies lessened his chances of election. Mr. Weeks was also an important member of the House of Representatives, by no means radical, and less outspoken in his denunciations of principles of the more radical Progressives than was Mr. McCall. On January 14, the legislature elected Mr. Weeks senator. His election made a vacancy in the thirteenth district, and on April 15 an election was held to fill this vacancy. The district had hitherto been a Republican stronghold, but in this election the Republicans showed very little interest, and did not go to the polls in large numbers. Many of those who did, cast their votes for John J. Mitchell, a Democratic candidate, who was elected. In this election the Democrats and Progressives polled about five per cent. less votes than were polled in the presidential election in 1912. The Republicans, however, lost 45 per cent. of the votes of 1912. On March 25 the House defeated the proposed woman suffrage amendment to the constitution. On June 16 Governor Foss vetoed the nine-hour bill. On May 14 Governor Foss appointed a commission to investigate the vice conditions in the State.

Massachusetts is one of the three States in which elections for governor and other State officers were held in 1913. On August 11 Congressman A. P. Gardner announced his candidacy for the Republican nomination. Lieutenant-Governor Walsh was a candidate for the Democratic nomination, and Charles S. Bird a candidate on the Progressive ticket. Governor Foss was also an active candidate for reëlection, but, as he was unable to obtain the proper number of names for the primaries, he was obliged to run independently. At a primary election held on September 23, Mr. Gardner was nominated by the Republicans, Lieutenant-Governor Walsh by the Democrats, and Mr. Bird by the Progressives. The campaign between the nominating primaries and the election on November 4 was aggressively conducted by all candidates. Governor Foss, running independently, declared his confidence in his reëlection, and shortly before election, had called upon the other candidates to withdraw as there would be no doubt of his election. As the result of the voting on November 4, David I. Walsh was elected governor, receiving 180,460 votes. Charles S. Bird, Progressive, received 126,700; Augustus P. Gardner, Republican, 116,300. Mr. Foss received only 20,900 votes. As a result of the election, the Republicans lost their majority in the lower House, in which the Progressives held the balance, and also lost control of the governor's council which reviews all executive appointments. Calvin D. Paige was elected to fill an unexpired term in Congress.

LEGISLATION. In the year 1913 a number of pure food laws were enacted. A measure was passed regulating the attendance at school and the employment of minors. The existing law relating to the maximum hours of women and minors was extended. A law was passed providing for mothers' pensions. The workmen's compensation law was amended, and a uniform labor law was passed. Measures were enacted regulating the construction and alteration of tenement houses. A retirement system of public school teachers was created, and an advisory board of pardons. The powers of the attorney-general in the prosecution of trusts, etc., were extended. Measures were enacted providing for the simplification of legal procedure, and the laws relating to weights and measures were amended. A law licensing aviators, providing for the inspection of aeroplanes, and regulating the "laws of the road" in flight was enacted. The legislature passed various conservation laws. The laws relating to elections were so amended that on application signed by 1200 voters in any senatorial district, or by 200 voters in any representative district, asking for the submission to the voters of any question of instructions to senators or representatives, the secretary of the commonwealth shall determine if such question is one of public policy, and, if he so determines, he shall place such question on the official ballot to be used at the next State election. The legislature provided for the submission to the people of a proposed amendment providing for the referendum. A uniform marriage law was passed. A measure was enacted providing for one day's rest in seven in certain manufacturing and mercantile employments. The granting of preliminary injunctions and restraining orders was restricted. See also LIQUOR REGULATION.

STATE GOVERNMENT. Governor, David I. Walsh; Lieutenant-Governor, E. P. Barry; Secretary of State, F. J. Donahue; Treasurer, F. W. Mansfield; Comptroller, F. L. Dean; Auditor, F. H. Pope; Adjutant-General, G. W. Pearson; Attorney-General, T. J. Boynton; Secretary of the Board of Agriculture, Wilfrid Wheeler; Commissioner of Insurance, Frank H. Hardison; Commissioner of Education, David Shedden—all Democrats.

JUDICIARY. Supreme Judicial Court for the Commonwealth: Chief Justice, Arthur Prentice Rugg; Justices, James M. Morton, John W. Hammond, Henry Newton Sheldon, William C. Loring, Henry K. Braley, and Charles Ambrose De Courcy; Clerk of the Court, C. H. Cooper—all Republicans.

STATE LEGISLATURE, 1913. Republicans: Senate, 18; House, 101; joint ballot, 119. Democrats: Senate, 17; House, 98; joint ballot, 115. Progressives: Senate, 2; House, 16; joint ballot, 18. Various parties and combinations of parties: Senate, 3; House, 25; joint ballot, 28.

The State representation in Congress will be found in the section *Congress*, article UNITED STATES.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY. An institution for technical education, founded in Boston in 1861. The number of students in November, 1913, was 1685. The total teaching staff numbered 251, of whom 57 were professors, 23 associate professors, 33 assistant professors, 74 instructors, 54 assistants, and 10 research workers. During the year Earle B. Phelps, assistant professor of research in chemical biology, S. Homer Woodbridge, associate professor of heating and ventilation, and Thomas E. Pope, professor of inorganic chemistry, retired from the faculty. Edgar Irving Williams was appointed assistant professor of architecture, and Robert Spurr Weston was appointed assistant professor of public health engineering. The endowment institute at the end of the year 1912-13 amounted to $2,874,867, and the income for the year 1912-13 to $120,747. The library contains 98,700 volumes and 28,400 pamphlets and maps. The president is Richard C. Maclaurin.

MAURITANIA. A civil territory of the government-general of French West Africa (q.v. for area, population, etc.). Considered from the ethnical point of view as the country inhabited by the descendants of the mixed Arab and Berber races known under the name of Moors, Mauritania is that region included within the south and west frontiers of the Sahara, the Atlantic coast, and the Senegal and Niger rivers. A part of the population is of the same races as those to be found in Senegal—Ouolofs, Peuhls, Toucouleurs, etc.; but the majority are Moors, invariably of Islam strongly tinctured with Sufism. With the exception of palm-tending groups, they are nomads, exclusively occupied in grazing. The negroes gather forest products, cultivate grains, etc., and catch and dry fish. Little information concerning the commerce of the country is available; in the oases the primitive method of barter obtains. Travel is by caravans. The chief towns are: Port-Etienne, Boutilimit, Aleg, Altar, etc. Lieutenant-Colonel Patey, appointed commissioner January 1, 1910, repressed numerous uprisings on the part of pillaging bands. Lieutenant-Colonel Mouret assumed the commissionership March 11, 1912.

MAURITIUS. A British crown colony; an island in the Indian Ocean. Area, 720 sq. miles; population (1911): 108,844 descendants of Europeans, Africans, or mixed races; 222,361 Indo-Mauritians; 35,526 other Indians; 3662 Chinese. Among the descendants of Europeans (mostly French creoles) intellectual development is of a high order. Capital, Port Louis, with 50,060 inhabitants. The primary schools enrolled 21,010 pupils in 1911 (63.52 per cent. Roman Catholic, 23.42 Hindu, 9.77 Mohammedan, 2.35 Church of England, 0.94 other Christian). The picturesque beauty of the island scenery is far-famed. Game abounds. From April to December the climate is agreeable; but during the rest of the year the island is visited by hurricanes and cyclones, with torrid heat in the lowlands and coast districts. Sugar is the chief product and export—237,050,048 kilos. in 1911, valued at Rs. 38,639,158 (estimate). Rum export, Rs. 39,671; molasses, Rs. 292,971; aloe-fibre, Rs. 605,552; cocoanut-oil, Rs. 161,064; vanilla, Rs. 44,182. Trade (calendar years) and finance (fiscal years) statistics are given below:

	1908-9	1909-10	1910-11	1911-12
Imps.	£30,550,160	£29,294,140	£37,545,260	£37,805,993
Exps.	33,803,560	32,802,140	37,109,170†	41,204,854†
Rev.	8,824,464	10,799,728	11,129,988	10,435,648
Expd.	9,621,454	9,449,260	9,578,243	9,843,980
Shipping*	755,150	986,267	877,691	....

* Tonnage entered and cleared. † Including shipping charges on home products, previously excluded.

Customs revenue (1911-12), Rs. 3,841,091. Public debt, June 30, 1912, £1,290,691 (exclusive of £127,314, December 31, 1911, foreign debenture debt, of the municipal corporation of Port Louis, plus loans amounting, December 31, 1911, to Rs. 74,334). Governor (1913), Maj. J. R. Challoner (appointed 1911).

Dependencies of Mauritius are Rodrigues (4829 inhabitants), Diego Garcia (517 inhabitants), and a number of scattered islands.

MAWSON'S EXPEDITION. See Polar Exploration, *Antarctic*.

MAYBRICK, Michael. An English composer, died August 26, 1913. He was born in Liverpool, in 1845, and educated in that city, in Milan, and Leipzig. He wrote many popular songs, including *The Holy City; The Star of Bethlehem; The Blue Alsatian Mountains.* These were written under the pen name of Stephen Adams. Mr. Maybrick was the younger brother of James Maybrick, whose wife Florence Maybrick, served sixteen years in prison, after conviction of a charge of poisoning her husband. He was at one time vice-president of Trinity College, in London.

MAYNARD, Washburn. An admiral of the United States navy, died October 24, 1913. Born in 1844, and graduated from the United States Naval Academy in 1866, he was made ensign in 1868, lieutenant in 1870, commander in 1893, captain in 1900, and rear-admiral (retired) in 1902. He served on many vessels, and during the Spanish-American War commanded the *Nashville.*

MAYOTTE AND THE COMORO ISLANDS. A group of islands, administratively attached to Madagascar, belonging to France. Area, 2168 sq. kilometers (837 sq. miles); population (1911), 97,750. The trade amounted in 1909 to 1,133,429 francs imports and 2,700,652 francs exports. For Mayotte the 1909 budget balanced at 221,341 francs; for Grand-Comore at 176,200. Administrator in 1913, M. Cartron, residing at D'zoudzi.

MEAT PRODUCTION. See Stock-Raising and Meat Production.

MECKLENBERG-STRELITZ. See Germany.

MEDICAL PROGRESS IN 1913. Several important and new discoveries as to the therapeutic properties of the X-ray and of radium were announced (see Radiotherapy and Radium). Distinct advances were made in the control of several epidemic diseases and in preventive medicine (see Diphtheria, Hookworm Disease, Occupational Diseases, Poliomyelitis (infantile spinal paralysis), Pellagra, Tetanus, Typhoid Fever, Small-pox, and Vaccination). More information was gained regarding certain imperfectly understood tropical diseases (see Beriberi, Plague, Sleeping Sickness, and Tropical Diseases). Many new drugs were introduced, among which the following may be enumerated: Benzol, Emetine Hydrochloride, Hediosit, Isatophan, Luminal, and Neosalvarsan. Encouraging results were reported in the diminution of tuberculosis and steps were taken to educate the public in the proper methods of controlling cancer (see Cancer, Tuberculosis). The investment of New York State of a million dollars, in order to acquire the water and mineral rights of the springs at Saratoga, together with 250 acres for a park, and the steps taken preliminary to the erection of the American Spa at Saratoga, are chronicled under the caption Saratoga Springs. Other medical items and statistics will be found under their respective captions.

MEDICAL SCHOOLS. See Universities and Colleges.

MELLEN, Charles Sanger. An American railway official, born in Lowell, Mass., in 1851. In 1869 he began his railway service as a clerk in the office of the cashier of the Northern New Hampshire Railroad. He served on various railroads in New England, until 1880, when he was appointed assistant to the manager of the Boston and Lowell Railroad, of which he eventually became general superintendent. In 1889 he became assistant general manager of the Union Pacific system, and for three years following was general traffic manager of the system. In 1892 he received the appointment of general manager of the New York and New England Railroad. He was second vice-president of the New York, New Haven, and Hartford Railroad from 1892 to 1896, and from 1896 to 1903 was president of the Northern Railway Company. In the latter year he returned to New England as president of the New York, New Haven, and Hartford road. His conduct in the New Haven system was marked by radical departures from the hitherto conservative policy of this railroad. Gradually, chiefly through his efforts, the New Haven road obtained a practical monopoly of transportation in New England, both by land and water. In addition to acquiring many steam railroads and steamship lines, he obtained for the New Haven road control of the chief traffic systems in Connecticut and many in Maine. A control of the Boston and Maine Railroad, which he finally acquired, was brought about only after efforts on the part of the Massachusetts State government had failed to prevent it. As a result of the policy carried out by Mr. Mellen and supported by the directors of the road, it gradually became burdened with an enormous debt and suffered a shortage of money necessary to carry out needed improvements in its lines and rolling stock. A succession of terrible accidents, in which many people were killed, added to popular disfavor of Mr. Mellen's management, and in addition he was indicted for manslaughter as a result of an accident near Westport, Conn. In July he resigned as president of the New Haven road and was succeeded by Howard Elliott (q.v.). For a further discussion of the New Haven road and of Mr. Mellen's connection with it, see Railways.

MEMORIAL ART GALLERY, Rochester. See Painting and Sculpture.

MENELIK II. Negus, or emperor, of Abyssinia, died December 15, 1913. He was born in 1844, the son of King Heili Melekot. His official title was King of Kings of Ethiopia, and he claimed direct descent from the Queen of Sheba and King Solomon. When Menelik ascended the throne in succession to his father in 1866, his country was riven by conflicts between petty chiefs. He established order with a strong hand, and peace reigned in Abyssinia until the attempt of Italy in 1899 to establish a protectorate over a considerable portion of Menelik's dominions bordering on the coast of the Red Sea. In 1890 Menelik declared war against Italy. The conflict dragged on, until in 1896 Menelik defeated a large Italian force at Adowa. The Italian government made no further effort to obtain a foothold in Abyssinia. Menelik was perhaps the most remarkable man ever produced by the Negroid race. He ruled his kingdom as an absolute monarch, and called to his aid the sciences and arts of Europe. He brought about many reforms and abolished slavery. He encouraged commerce and established agriculture. He also aided in the construction of railroads, and maintained friendly relations with foreign powers. The heir to the throne is his son, Lidj Jeassu, born in 1897. He was proclaimed heir in 1908. See also Abyssinia.

MERIT SYSTEM. See Civil Service.

MESOPOTAMIA, Archæology of. See Archæology.

MESOTHORIUM. See Radium.

METAL-KETYLS. See Chemistry.

METALLURGY. Metallurgical progress during the year 1913 was concerned more with the improvements of processes in detail in the interest of greater economy and efficiency and in investigation and research, than with inventions and discoveries of extraordinary importance. The following paragraphs summarizing the progress in the metallurgy of the various metals are based in large part on authoritative reviews of progress published in the annual statistical and progress number of the *Engineering and Mining Journal* (New York):

Gold and Silver. The principal improvements in the metallurgy of gold were designed to increase the efficiency in handling slimes and recovering gold from the concentrates at the mills in order to save freight and charges for treatment. Low grade ores were also being treated successfully where once such material would hardly have been considered worth attention. The cyanide process was improved during the year, rather than radically changed, and in a new mill of the Nipissing Mining Company, at Cobalt, aluminum dust was used as a precipitation to precipitate gold and silver from the cyanide solution. Aluminum forms no compound with cyanide, so when the metals are removed from the solution the cyanide used in dissolving can be returned to the solution for further use. In the plant mentioned it was found that the arsenic carried by the ore interfered with the process, and this was avoided entirely by the use of aluminum instead of a zinc precipitant. It was thought that this discovery might lead to a practical process for the treatment of ores containing soluble base metals by the cyanide process. Hitherto ores containing copper, or other metals, to a large extent could not be economically treated by cyanide on account of the great chemical consumption. This was a development indicated, rather than demonstrated, during the year. Stamp mills for crushing ore were in many cases being replaced by rolls, ball mills, or chilean mills.

Lead. At Herculaneum, Mo., and Midvale, Utah, a two-hearth form of MacDougall type of furnace was devised by U. Wedge, for the preliminary partial oxidizing roast to which ore and matte are subjected previous to blast roasting. Previously this had been done in a single-hearth reverbatory furnace, but when matte was used in a mechanically raked furnace, the caking of the charge surely acted to give trouble. In the new furnace the temperature and air were controlled and regulated carefully so that an effective roast could be secured with material which is readily fusible. The Dwight-Lloyd straight-line sintering machine, which found considerable application in the United States, was used for blast roasting at Cerro de Pasco, Peru, a plant at an elevation of 14,000 feet, and with certain modifications worked as well as at lower levels, being able to handle charges with a higher percentage of sulphur. The accidents due to the ignition of sulphur and flue dust, which had been experienced at lower altitudes, but were avoided by watching the temperature of the flue, were not experienced at the higher altitudes. New processes have been worked for desilverizing lead bullion, and a new process has been developed whereby the antimony formerly wasted is saved.

COPPER. No radical departures from standard practice was recorded in the smelting of copper ores during the year 1913, but existing methods were developed and improved and the use of particular processes was better understood. New construction, or rebuilding, at Great Falls, Mont., Douglas and Jerome, Ariz., were in progress, and the modernizing of these great plants was based on results secured by previous large-scale experiments, especially at Anaconda and Great Falls. Improvements were being made in roasting devices, and Dwight-Lloyd sintering machines found increased use in the copper field. Progress was made in the standardization of reverbatory furnaces so that the type capable of most successful operation was well understood and generally adopted. The Great Falls plant showed various types of blasting furnaces for smelting, and comparative studies of the different systems were published during the year in the *Transactions of the American Institute of Mining Engineers.* The question of fume condensation and smelter smoke were important during the year, and several refineries had under investigation various methods for recovering valuable metals in the smoke, preventing damage to agriculture, and the question of damage suits. American copper companies were also working on the question of extracting copper from low-grade ore by leaching and electrolytic and other methods, especially those by means of precipitation with metallic iron. In fact, almost all the large copper companies had under test, or in operation, some method for treating the wastes or low-grade ores.

ZINC. Wide interest was manifested during the year in the electric smelting of zinc ores. The experimental plant at Butte, Mont., was abandoned, as the results were not considered commercially promising, though most instructive. A small one-ton furnace was in operation at Hartford, Conn., at intervals, while an experimental installation was begun at Nelson, British Columbia, by the Canadian Department of Mines. In Europe a 400-kilowatt furnace using the Côte-Pierron process, was installed at Ugine, Savoy, while several thousand tons of electrically smelted spelter were produced at Sparsborg, in Norway, and at Trollhattan, in Sweden. At the latter place a new plant with seventeen furnaces of 1000 horse power and eight furnaces of 500 horse power, was being completed. Smelting operations at these Scandinavian works had not been demonstrated as profitable, but in August the results were better than in any previous month, and hopes for a better outcome were held. Among the chief hydrometallurgical processes attracting attention in 1913 was the so-called bisulphite and the Bretherton ammonia process, which had not been put into commercial operation, but which, on a theoretical basis, promised good results. To precipitate the zinc by electrolysis after it has been obtained in solution was the object of another class of hydrometallurgical processes in which there was considerable experimentation, but without any publication of results.

IRON AND STEEL. The large supplies of iron ore in the State of Texas promised to receive some attention by the building of a smelting plant in that State, while the treatment of various foreign ores in which American interests were more or less represented, attracted increased attention. The increase in the use of dry blast and also blast-furnace blast and bessemer blast enriched in oxygen continued, and liquid air was being employed in a basic bessemer steel converter, with the result that the temperature was raised from a normal of less than 1700° C. to about 2000° C. The use of blast-furnace gas with gas engines continued and improved methods for cleaning the gases were developed. Some nineteen electric furnaces for the manufacture of iron and steel were in operation in the United States during the year, but of these it was stated that hardly more than one or two were running continuously. About 150 active electric steel furnaces had been constructed in different parts of the world, though the tendency was to employ the electric furnaces for annealing, hardening, and other operations requiring exact control rather than for melting, smelting, and refining.

The failure of railway rails, leading in some cases to serious accidents, attracted much attention, and processes for making sound steel ingots so as to eliminate pipes, were being actively worked. In England the Hadfield process, which consisted in placing a charcoal fire on top of the melted steel after interposing a layer of insulating slag and then using the combustion of this charcoal for heating the steel and drawing the shrinkage cavity to a higher point. The ingot mold was provided with a fire clay top to decrease the radiation from this part. In the Talbot process the ingot is passed through a pair of rolls before the interior has solidified, and by thus reducing its size the shrinkage cavity was closed. This principle was used by P. H. Dudley, the well-known American rail metallurgist, and Emil Gathmann, who cast his ingot with the large end up, and hastened the cooling of the lower part by increasing the metal of the ingot mold at that point. There was involved also an ingenious process for stripping the ingots without turning them over. The increase in the price of petroleum has caused a decrease in the use of this fuel, and in the increased attention in the application of pulverized coal, which is said to give the highest temperature next to the electric furnace, together with good control of combustion. The critical points of steel have attracted attention from leading metallurgists and investigators in Europe and America, and the work involved some recasting of theories and newer developments. Alloy steels, including those where cobalt (see CHEMISTRY, INDUSTRIAL) and manganese were added, attracted more than usual attention, while copper steels were still further investigated on account of their rust resisting properties and greater durability in rails and steel sheets. Copper-steel, containing up to 4 per cent. of copper, can be forged, and with .8 per cent. of copper can be welded successfully. The effect of the copper is to lower the A1 critical point, to increase the elastic limit and the hardness of the steel. The effects of nitrogen and oxygen on steel were further discussed during 1913. The injurious effect of nitrogen remaining dissolved in steel was confirmed in a long research published during the year, and methods for determination were discussed in regard to oxygen. So much attention was being paid to the subject that important developments in the near future were looked for. (See IRON AND STEEL.)

Important events of the year in connection with the electrometallurgy of steel were the putting in operation of several new plants. The Crucible Steel Company of America at its Harrison works put in operation a Heroult furnace, and about the same time a foundry in southern California started operations with the first American steel furnace of the pure Stassano. Two large Frick furnaces, each of twenty tons capacity, were ordered by a Pennsylvania steel company, and these furnaces were reported as unusually large for induction furnaces. Several Girod steel furnaces were also in operation, while Dr. Carl Hering continued his experimental work with the Pinch-effect furnace, which was designed for steel refining, as well as for brass and copper melting.

During the year the well-known Stora Kopparbergs Bergslag Company, in Dalecarlia, Sweden, prepared plans for an increase of the production of iron and steel from 100,000 to 300,000 tons per annum, of which 200,000 tons were to be manufactured electrically. This would amount to an increase in the annual output of iron for all Sweden of some 25 per cent., and would require a greater horse power than the company's own water could supply, as well as an increased output of some 500,000 tons of ore from the company's mines. The plan involved the export of finished rolling-mill products only and the supply of home manufacturers with cheap raw materials and with structural iron and steel. It was proposed to use the Helffenstein, which works on a large scale and stands a very large current, as it seemed able to work with as much as 10,000 to 12,000 horse power. Other branches of this Swedish plant were also being extended. (See also CHEMISTRY, INDUSTRIAL.)

METAPHYSICS. See PHILOSOPHY.

METEOROLOGY. Meteorological science suffered a distinct loss early in 1913 in the death of Teisserenc de Bort (q.v.).. His pioneer work in the investigation of the upper air, and his discovery of the "stratosphere," or layer of the atmosphere in which the vertical temperature gradient is zero, was the cause of a complete revolution in our knowledge of the upper regions of the atmosphere.

AURORAL RESEARCH. Störmer, whose researches on the aurora were noticed in the YEAR BOOK for 1911, undertook another expedition to Bossekop, N. Sweden, for the purpose of obtaining a further series of photographs of the aurora. To secure more reliable parallaxes, a base of 27½ kilometers was used; in 1910 the base employed was only 4½ kilometers. Störmer himself superintended the work of observation at Bossekop, while his associate, Birkeland, made the necessary observations at Store Korsnes, where the other extremity of the base was situated. A large number of simultaneous pairs of photographs of the aurora were obtained, from which important conclusions as to the height and position in space of the aurora were expected. Attempts to secure a kinematographic record of the aurora failed altogether on account of the faintness of the auroral light.

VOLCANIC DUST AND CLIMATIC CHANGES. Humphreys, in the *Bulletin of the Mount Weather Observatory*, directed attention to the various theories which had been advanced to account for the origin of the ice ages, and particularly to that propounded by P. and F. Sarasin in 1901, and suggested, vaguely perhaps, by Franklin so long ago as 1784. This theory states that the low temperature essential to the glaciation of the ice ages was caused by the absorption of solar radiation by volcanic dust clouds in the upper atmosphere. Humphreys examined the records of exceptionally cold years since 1750, and found that practically all the great volcanic eruptions were followed by cold periods extending, in many cases, to three years, and in one case to five years. The most notable eruptions were those of Asama, in Japan, which occurred in 1783, and was followed by the cold years of 1784-6; Tomboro, near Java, in 1815, which came during a period of exceptional volcanic activity, and was followed by 1815, the famous "year without a summer," thus extending a period of three cold years to five; and Krakatoa, in 1884, which was succeeded by the three-year cold period of 1884-6. The cold years, 1912 and 1913, were attributed to the eruption of Katmai, in Alaska, in June, 1912. Not all eruptions are followed by cold years, but only those in which an enormous quantity of volcanic dust is projected into the upper layers of the atmosphere. The conclusion reached is that volcanic dust in the upper atmosphere, by decreasing the intensity of solar radiation in the lower atmosphere, and therefore the average temperature of the earth "must have been a factor, possibly a very important one, in the production of many, perhaps all, past climatic changes, and that through it, at least in part, the world is yet to know many another climatic change in an irregular but well-nigh endless series—usually slight though always important, but occasionally it may be, as in the past, both profound and disastrous."

THE INFLUENCE OF FORESTS UPON CLIMATE. Professor Ward, in the *Popular Science Monthly*, discussed the widespread belief that forests are influential in affecting the rainfall and temperature. As might be expected, equatorial forests, by supplying much water vapor through transpiration and evaporation, and possibly also by cutting off sunshine through the tendency to form fog and clouds, have more marked effects in lowering the temperature than temperate forests, but, as Supan asserts, it is not probable that the system of isotherms would be radically altered if Europe and Asia were one great forest from ocean to ocean. The same thing is probably true about the United States. With regard to the rainfall, Ward concluded that we have as yet no satisfactory evidence that forests, at least in temperate latitudes, have any important effect upon the amount of the rain fall as distinct from the rain catch. In the tropics, the conditions are different. From the hot and damp tropical forests there must come a large amount of moisture which will increase the vapor content of the ascending air and tend to increase condensation and rainfall; but the amount of rainfall in the tropics is so large under any circumstances that whether there is more or less is of no significance, and certainly of no economic importance.

Polarization of Skylight. Kimball reported that the polarization of skylight underwent a decided change during the summer. The increase in polarization after sunset at a distance of 90° from the sun and in the sun's vertical, which was so pronounced in 1902-3 and again early in 1913, was found to be quite insignificant, while with the sun at 60° from the zenith, there was a marked increase in the polarization at the point indicated. This polarization, which in August, 1912, amounted to 32 per cent., increased to 44 per cent. in July, 1913, and to 49 per cent. in August. It was thought probable that these changes were connected with the gradual precipitation from the atmosphere of the volcanic dust which had been present in the upper layer since the great eruption of Mount Katmai, which occurred on June 6, 1912.

METHODIST EPISCOPAL CHURCH. Is the largest in point of number of communicants among the Protestant denominations in the United States, and it also shows the largest percentage of growth in recent years. The total number of communicants in 1913 was 3,415,768, churches 28,291, and the preachers 18,783. This represents a gain of 182,242 communicants over the figures for 1912. The church is divided into conferences. Of these there are in the United States and Territories 105, and in foreign countries 24, making a total of 129. There are also in the United States 16 missions and mission conferences, and in foreign countries 12, making a total number of conferences of all kinds of 157. The foreign conferences are divided into three main classes—European Central Conference, Eastern Asia Central Conference, and Southern Asia Conference. In the Sunday schools of the denomination in 1913 were 1,165,015 officers and teachers. The estimated value of the church property was $89,385,857. Missions are carried on in nearly all countries of Europe, Asia, and Africa. There are also missions in South America, Hawaii, and Mexico. Missions are conducted through the board of foreign missions. The total receipts for the support of foreign missions in 1913 was $1,157,469, and the disbursements amounted to $1,108,961. Domestic missions are carried on through the board of home missions and church extension. The receipts for the support of this work in 1913 amounted to $1,055,057, and the disbursements to $1,000,715. Work among colored people in the South is carried on by the Freedman's Aid Society, and educational work is in the hands of the board of education. Among the notable achievements of this board during the year was the raising of $1,000,000 for the Goucher College, Baltimore, $500,000 for the University of Chattanooga, and a total of approximately $1,500,000 for other institutions. The denomination supports many universities and colleges through the country, and there are ten theological schools for white students and five for colored. Perhaps the most notable event in the history of Methodism during the year was the Methodist men's convention held in Indianapolis on October 28-31, 1913. Over 3300 men were present. A committee on policy was appointed, which consisted of 62 members. The convention adopted a programme which includes personal evangelism at home and abroad; the principle of social redemption in all lines, and the application of the spirit and teachings of Christ to the total relations of men; the bringing of Methodist youth everywhere into real Christian life and their training for effective Christian service; the adoption of the practice of the principle of stewardship by every member of the church as defined by its principles. The last general conference of the denomination was held in Minneapolis on May 1, 1912. See also Religious Denominations and Movements.

METHODIST EPISCOPAL CHURCH, South. This body, which includes the greater number of Methodists in the Southern States, had in 1913, according to statistics gathered by the Federal Council of the Churches of Christ in America, 1,996,877 communicants, 15,991 churches, and 7007 preachers. Of the total membership about 30,000 are outside of the United States. Churches and colleges of the denomination are valued at about $13,000,000, and the endowment to nearly $4,000,000. The annual expense for foreign missions amounted to about $450,000, and for home missions about $415,000. For educational purposes it expended over $250,000 annually. See also Religious Denominations and Movements.

METHODIST PROTESTANT CHURCH. This denomination had in 1913 180,382 communicants, 2348 churches, and 1371 preachers. The denomination is found in various parts of the country, but is strongest in the South. Efforts have been made in recent years to bring about union between the Congregational Church, the United Brethrens (q.v.), and the Methodist Protestant Church, but these have been in abeyance for several years as the result of the action of the national council for the Congregational churches in voting to defer action. The denomination carries on foreign and domestic missions, and maintains publishing houses in Baltimore and Pittsburgh. See also Religious Denominations and Movements.

METHODISTS, Colored. The colored branches of the Methodist Episcopal Church include the Colored Methodist Episcopal Church of 276,077 communicants, 2997 churches, 2993 preachers; the African Methodist Church, with 620,000 communicants, 6000 churches, and 5000 preachers; the African Methodist Episcopal Zion Church, with 568,608 communicants, 3180 churches, and 3552 preachers; the Zion Union Apostolic Church, with 3059 communicants, 45 churches, and 33 preachers; the Union American Methodist Episcopal Church, with 18,500 communicants, 200 churches, and 160 preachers; and the Reform Methodist Union Episcopal Church, with 4000 communicants, 58 churches, and 40 preachers. The largest of these denominations have their chief strength in the Southern States. See also Religious Denominations and Movements.

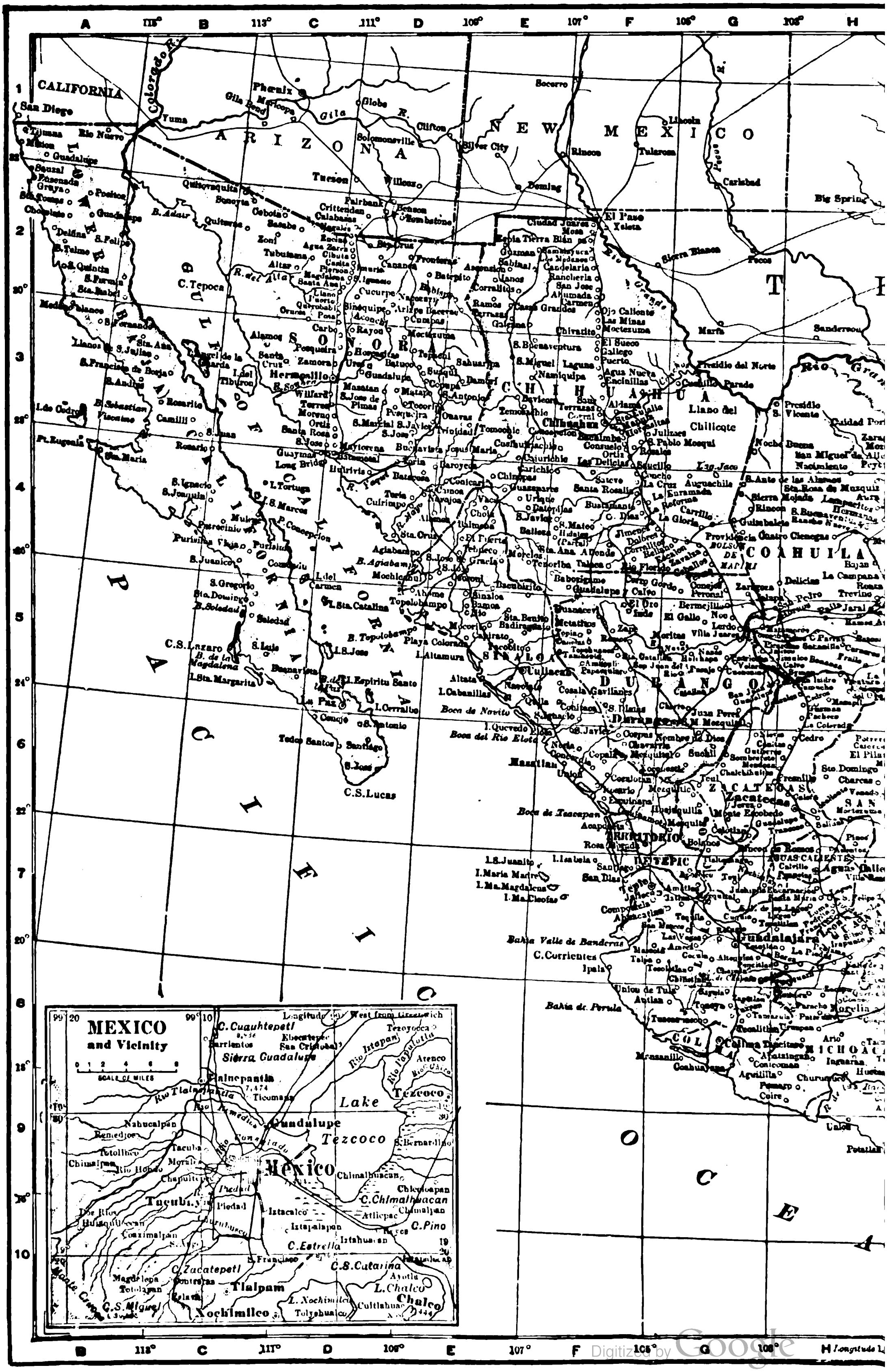
METRIC SYSTEM. See Weights and Measures.

METROPOLITAN MUSEUM OF ART. See Altman, B.; Morgan, J. P.; and Painting and Sculpture.

METROPOLITAN OPERA COMPANY, New York. See Music, *Opera*.

MEXICO. A federal republic between the United States and Central America; called in its official publications, ***Estados Unidos Mexicanos*** and ***República Mexicana.*** The capital city is Mexico.

Area and Population. The area is officially stated at 1,987,201 square kilometers (767,258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ZACATECAS
TERRITORIO DE TEPIC
AGUAS CALIENTES
Guadalajara
COLIMA
MICHOACAN
GULF OF CALIFORNIA
PACIFIC OCEAN
San Diego
Yuma
Phœnix
Tucson
El Paso
Ciudad Juarez
Chihuahua
Hermosillo
Guaymas
Culiacan
Durango
Mazatlan
Zacatecas
Tepic
La Paz
C.S.Lucas
Colorado R.
Gila R.
Rio Grande
MEXICO
and Vicinity
SCALE OF MILES
Lake Tezcoco
Mexico
Guadalupe
Tacubaya
Tlalpam
Xochimilco
L. Chalco
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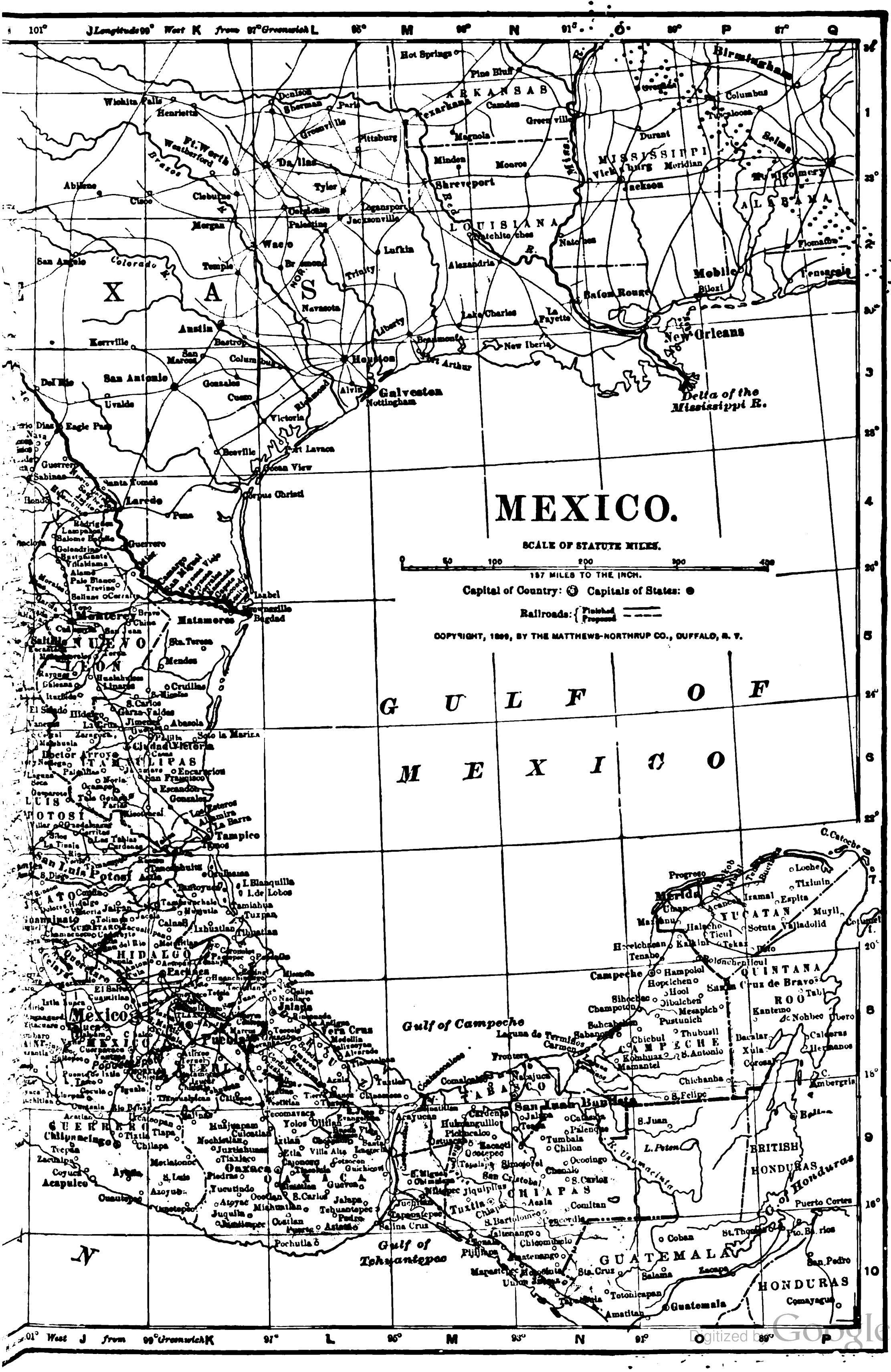
Longitude West from Greenwich


MEXICO.
SCALE OF STATUTE MILES.
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TEXAS
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LOUISIANA
MISSISSIPPI
ALABAMA
GULF OF MEXICO
Gulf of Campeche
Gulf of Tehuantepec
Delta of the Mississippi R.
Hot Springs
Pine Bluff
Birmingham
Columbus
Tuscaloosa
Selma
Montgomery
Greenville
Camden
Texarkana
Magnolia
Denison
Sherman
Paris
Wichita Falls
Henrietta
Ft. Worth
Weatherford
Dallas
Pittsburg
Minden
Monroe
Shreveport
Vicksburg
Jackson
Meridian
Durant
Abilene
Cisco
Cleburne
Tyler
Marshall
Logansport
Jacksonville
Palestine
Morgan
Waco
Natchitoches
Natchez
Lufkin
Alexandria
Trinity
San Angelo
Colorado R.
Temple
Mobile
Biloxi
Pensacola
Flomaton
Baton Rouge
New Orleans
Navasota
Austin
Lake Charles
La Fayette
New Iberia
Beaumont
Port Arthur
Liberty
Houston
Kerrville
San Marcos
Bastrop
Columbus
San Antonio
Gonzales
Del Rio
Uvalde
Cuero
Alvin
Galveston
Nottingham
Victoria
Eagle Pass
Beeville
Port Lavaca
Ocean View
Corpus Christi
Laredo
Pena
Guerrero
Santa Tomas
Sabinas
Rio Grande
Matamoros
Brownsville
Bagdad
Isabel
Monterey
NUEVO LEON
Saltillo
Sta. Teresa
Mendes
Linares
Cruillas
S. Carlos
Jimenez
Abasola
Soto la Marina
Ciudad Victoria
TAMAULIPAS
Encarnacion
San Francisco
Escandon
Gonzales
Altamira
La Barra
Tampico
Doctor Arroyo
SAN LUIS POTOSI
San Luis Potosi
Tancanhuitz
Tantoyuca
Ozuluama
I. Blanquilla
I. de Lobos
Tamiahua
Tuxpan
Tihuatlan
Papantla
GUANAJUATO
Guanajuato
Queretaro
HIDALGO
Pachuca
Mexico
MEXICO
Toluca
Cuernavaca
Puebla
Jalapa
Vera Cruz
Medellin
Alvarado
Tlacotalpan
Orizaba
Cordoba
Tehuacan
Tuxtla
Acayucan
Coatzacoalcos
Minatitlan
Chinameca
Comalcalco
Frontera
TABASCO
San Juan Bautista
Cardenas
Huimanguillo
Teapa
Palenque
Tumbala
Chilon
Ocosingo
Simojovel
San Cristobal
Tuxtla
CHIAPAS
Comitan
Chiapa
Tonala
Tapachula
Juchitan
Tehuantepec
Salina Cruz
OAXACA
Oaxaca
Tlaxiaco
Juxtlahuaca
Pochutla
Puerto Angel
GUERRERO
Chilpancingo
Tixtla
Chilapa
Iguala
Tlapa
Ayutla
Acapulco
Tecpan
Coyuca
Ometepec
Cuautepec
Campeche
Champoton
Hopelchen
Carmen
Laguna de Terminos
CAMPECHE
Progreso
Merida
Izamal
YUCATAN
Tekax
Ticul
Sotuta
Valladolid
Espita
Tizimin
C. Catoche
QUINTANA ROO
Santa Cruz de Bravo
Bacalar
Xcalak
Corozal
BRITISH HONDURAS
Belize
L. Peten
R. Usumacinta
GUATEMALA
Coban
Salama
Zacapa
Guatemala
Totonicapan
Quezaltenango
Sta. Cruz
Amatitlan
St. Thomas
Puerto Cortes
San Pedro
Comayagua
HONDURAS
G. of Honduras
Ambergris
S. Felipe
S. Juan

square miles). The census of 1895 returned a population of 12,632,427; census of 1900, 13,607,259; census of October 27, 1910, 15,160,369. The estimated population in 1911 was 15,329,831, and in 1912 15,501,684. Only a small proportion of the population is of pure white race. In 1900, the number of pure whites, and nearly pure, constituted about 19 per cent. of the total population; mestizos, about 43 per cent.; Indians, about 38 per cent. The following table shows the area, the population according to the corrected returns of the 1910 census, and the density per square kilometer for the Federal District and for each of the states and territories:

	Sq. kms.	Pop.	Dens.
Distrito Federal	1,499	720,753	480.82
Aguascalientes	7,692	120,511	15.67
Campeche	46,855	86,661	1.85
Coahuila	165,219	362,092	2.19
Colima	5,887	77,704	13.20
Chiapas	71,302	438,843	6.15
Chihuahua	233,214	405,707	1.74
Durango	109,495	483,175	4.41
Guanajuato	28,363	1,081,651	38.14
Guerrero	65,480	594,278	9.08
Hidalgo	22,373	656,551	28.90
Jalisco	86,752	1,208,855	13.93
México	23,909	989,510	41.39
Michoacán	58,594	991,880	16.93
Morelos	4,911	179,594	36.57
Nuevo León	64,838	365,150	5.63
Oaxaca	92,443	1,040,398	11.25
Puebla	33,653	1,101,600	32.73
Querétaro	11,638	244,663	21.02
San Luis Potosí	62,177	627,800	10.10
Sinaloa	71,380	323,642	4.53
Sonora	198,496	265,383	1.34
Tabasco	26,871	187,574	6.98
Tamaulipas	79,861	249,641	3.13
Tlaxcala	3,974	184,171	46.34
Veracruz	72,216	1,132,859	15.69
Yucatán	41,287	339,613	8.23
Zacatecas	63,386	477,556	7.53
*Baja California	151,109	52,272	0.35
*Quintana Roo	49,914	9,109	0.18
*Tepic	28,371	171,173	6.03
Islands	4,042	....	....
Total	1,987,201	15,160,369	7.63

* Territory.

The following figures (from a total return of 15,115,612 and therefore subject to slight revision) show the principal nationalities according to the 1910 census: Mexicans, 15,010,068; Spaniards, 24,212; Guatemalans, 21,302; Americans, 19,568; Chinese, 12,769; British, 4771; French, 3971; Germans, 3645; Turks, etc., 2563; Cubans, 2394; Italians, 2068; Japanese, 1922.

Population of the larger cities, according to the 1910 census, with percentage of increase since 1900: Mexico, 471,066 (36.65); Guadalajara, 119,468 (18.04); Puebla, 96,121 (2.78); Monterrey, 78,528 (26.12): San Luis Potosí, 68,022 (11.48); Mérida, 62,447 (43.13); Aguascalientes, 45,198 (29.20); Morelia, 40,042 (7.41); Chihuahua, 39,706 (30.59); Pachuca, 39,009 (4.06); Oaxaca, 38,011 (8.45); Guanajuato, 35,682 (—13.99); Saltillo, 35,414 (47.58); Querétaro, 33,062 (—0.27); Durango, 31,763 (2.16); Toluca, 31,023 (19.51); Zacatecas, 25,900 (2119); Colima, 25,148 (21.50); Xalapa, 23,640 (15.95); Tepic, 16,778 (8.33); Campeche, 16,775 (1.95); Hermosillo, 14,578 (37.36); Culiacán, 13,527 (30.32); Cuernavaca, 12,776 (33.30); San Juan Bautista, 12,327 (16.92); Ciudad Victoria, 12,103 (20.00); Tuxtla Gutiérrez, 10,239 (8.98). The foregoing are capitals. Other large cities and towns are: León, 57,722; Veracruz, 48,633; Tacubaya, 35,830; Orizaba, 35,263; Torreón, 34,271; Tacuba, 29,596; Celaya, 23,062; Irapuato, 21,469; Mazatlán, 21,219; Ciudad Guzmán, 17,085; Campeche, 16,775; Tampico, 16,528; Matehuala, 16,476; Gómez, Palacio, 15,997; Acayucán, 14,295; Silao, 14,059; Juchitán, 13,891; San Cristóbal Las Casas, 13,745; Salamanca, 13,497; San Pedro de las Colonias, 13,066; Atzapotzalco, 12,818; Valle de Santiago, 12,737; Guadalupe Hidalgo, 12,350; Guaymas, 12,333; Lagos de Moreno, 12,243; Teziutlán, 11,813; San Francisco del Rincón, 11,359; Acámbaro, 11,080; Ciudad Juárez, 10,621; Autlán, 10,308; Córdoba, 10,295; San Andrés Tuxtla, 10,132; Progreso, 5509.

The 1910 census showed only about 56,000 Protestants, the bulk of the population being Roman Catholic; a large number of inhabitants are without specific confession. Illiteracy is prevalent, and, on account of incessant revolutionary disturbances, no recent trustworthy statistics of schools are available. In 1906 public elementary schools (primary) numbered 8451, with 542,539 pupils; public elementary schools (superior), 354, with 51,789 pupils.

INDUSTRIES. Industrial and commercial conditions in Mexico since 1911 have been greatly disturbed by the various revolutionary outbreaks. The country is a large producer of silver and gold, while the mining of copper, lead, antimony, zinc, etc., is also carried on. In proportion to the country's capabilities, agricultural production is small. The leading crops include corn, cotton, henequen, wheat, sugar-cane, coffee, beans, and tobacco. The largest output of gold was attained in the fiscal year 1910-11, amounting to 37,111.56 kilogrammes, worth 49,481.956 pesos. Notwithstanding political conditions, the silver output, as officially reported, reached its maximum in the year 1911-12, amounting to 2,493,730.73 kilogrammes, valued at 138,182,067 pesos. The development of gold and silver production is reported as follows for fiscal years:

	Gold		Silver	
	Kilos	Pesos	Kilos	Pesos
1879-80	1,394.6	1,859,506	673,484.7	27,555,627
1889-90	1,037.7	1,383,655	957,025.2	39,156,687
1893-94	1,842.7	2,456,990	1,422,709.3	58,210,150
1894-95	7,024.6	9,366,139	1,422,561.0	58,204,085
1899-1900	11,583.5	15,444,667	1,716,214.4	70,218,914
1904-05	21,305.5	28,407,313	1,931,984.6	79,047,148
1907-08	30,395.5	40,527,185	2,151,014.2	85,366,904
1909-10	36,221.7	48,295,508	2,257,363.0	76,371,884
1910-11	37,111.6	49,481,956	2,305,093.7	80,878,729
1911-12	36,415.3	48,553,632	2,493,730.7	89,628,435

In the thirty-five years from 1877-78 to 1911-12, the gold output amounted to 395,904.7 kilos, worth 527,871,760 pesos; silver, 49,600,726.5 kilos, 1,973,394,124 pesos; total value gold and silver, 2,501,265,884 pesos.

The principal manufactures are cotton and other textiles, tobacco, sugar, and spirits. In the year 1910-11, the mill consumption of raw cotton was 34,568,212 kilos; in 1911-12, 33,153,636 kilos. The output of cotton goods and prints was 15,090,669 bolts in 1910-11, and 14,128,366 in 1911-12; yarn, 2,766,973 and 3,020,569 kilos. In 1910-11 and 1911-12, tobacco manufacturing consumed 8,874,118 and 10,137,790 kilos.

COMMERCE. In fiscal years ended June 30, imports, exports of merchandise, exports of silver and gold and their ores, and total exports have been valued as follows in pesos:

	Total imports	Exports Sil. & gold	Exports Other	Total exports
1900	128,796,606	79,216,597	79,031,336	158,247,933
1905	178,204,963	93,885,527	114,634,924	208,520,451
1907	232,229,579	123,735,504	124,282,506	248,018,010
1910	194,865,781	118,985,524	141,060,746	260,046,270
1911	205,874,273	142,958,367	150,795,273	293,753,640
1912	182,662,311	139,473,469	158,515,660	297,989,129
1913	195,772,000	130,885,000	169,521,000	300,406,000

Principal exports in the year 1912-13 were valued as follows, in thousands of pesos: Silver, 91,294; gold, 39,591; copper, 36,522; henequen, 30,150; coffee, 11,264; hides and skins, 11,172; rubber, 8376; live animals, 7552; guayule, 7235; chicle, 4930; lead, 4907; chick peas, 4342; ixtle, 3646; woods, 3365; vanilla, 3315; zacatón root, 1960; antimony, 1575; tobacco, 1323; beans, 1160; fresh fruit, 1019.

Exports of gold and silver respectively, in thousands of pesos: In 1904-05, 28,362 and 65,524; in 1909-10, 42,636 and 76,349; in 1910-11, 62,091 and 80,868; in 1911-12, 49,905 and 89,568. Classified exports in 1910-11 and 1911-12: Mineral products other than silver and gold, 37,048 and 46,733; total mineral products, 180,006 and 186,207; vegetable products, 91,267 and 83,587; animal products, 16,802 and 19,861; manufactured products, 3610 and 6604; various, 2069 and 1731; total, including gold and silver, 293,754 and 297,989.

Classified imports in 1910-11 and 1911-12, in thousands of pesos: Animal substances, 17,433 and 16,466; vegetable substances, 38,600 and 31,286; mineral substances, 52,031 and 46,712; textiles and their manufactures, 24,640 and 21,282; chemicals and drugs, 12,990 and 12,074; beverages, 6813 and 6744; paper and its manufactures, 5609 and 5121; machinery and apparatus, 25,811 and 23,384; vehicles, 9095 and 4601; arms and explosives, 3213 and 5388; miscellaneous, 9638 and 9605; total, 205,874 and 182,662.

Trade by countries in fiscal years, in thousands of pesos:

	Imports		Exports	
	1911-12	1912-13	1911-12	1912-13
United States	98,426	97,288	224,103	232,036
United Kingdom	21,506	25,900	40,199	31,147
Germany	23,845	25,221	10,317	16,438
France	15,618	18,338	8,330	7,151
Spain	5,900	10,531	2,361	2,183
Belgium	3,279	2,803	6,355	5,121
Italy	1,949	1,884	157	94
Austria-Hungary	2,091	1,901	208	7
Total, including other	182,662	195,772	297,989	300,406

During the first four months of the fiscal year 1913-14, imports were valued at 60,272,471 pesos, as compared with 60,835,283 pesos in the corresponding months of 1912-13; the decline being only 0.95 per cent. The exports for the same periods were valued at 84,807,557 and 114,296,030 pesos respectively; the decline being 25.80 per cent.

Shipping. In direct international navigation, there entered in 1910-11 1998 vessels, of 3,727,519 tons (steam 1342, of 3,609,823), and cleared 1964 vessels, of 3,852,234 tons (steam 1361, of 3,746,605); in 1911-12, entered 2090 vessels, of 3,604,527 tons (steam 1407, of 3,434,293), and cleared 2059 vessels, of 3,714,742 tons (steam 1418, of 3,531,544). Merchant marine (1911), 32 steamers, of 16,648 tons net, and 50 sail, of 8712 tons net.

Communications. The length of railway reported as in operation in September, 1913, was 25,398 kilometers (15,782 miles), of which 19,877 kilometers were controlled by federal or state government; as compared with 25,287 kilometers (15,713 miles) in operation in September, 1912; 24,717 kilometers (15,358 miles) in 1911; 24,559 kilometers in 1910, and 24,161 1912, 74,899 kilometers, with 530 offices; wire- 1912, 74,899 kilometers, with 530 offices; wireless telegraphy stations, 9. Post offices (1913), 2911.

Finance. Mexico has the gold exchange standard; the monetary unit is the peso, whose par value is 49.846 cents. In the fiscal year 1910-11, revenue amounted to 111,142,482 pesos, and ordinary expenditure to 100,913,924 pesos. The budget of 1912-13 showed estimated revenue and expenditure of 103,657,000 and 103,602,400 pesos respectively; budget of 1913-14, 122,000,000 and 141,155,437. The latter budget showed estimated receipts as follows: Customs, 52,600,000; direct taxes, 11,150,000; posts and telegraphs, 4,218,000; internal revenue and stamps, 32,100,000; taxes on mines, 1,700,000; lottery, 1,200,000; various, 2,300,000; treasury reserves, 6,732,000; total, 122,000,000. Estimated departmental disbursements: War and marine, 43,724,839; finance and public debt, 37,261,878; interior, 19,418,212; communications, 15,013,517; public instruction, 13,926,600; fomento, 4,317,838; legislative, 2,274,376; foreign affairs, 2,230,205; justice, 1,988,055; supreme court, 772,170; executive, 227,749; total, 141,155,437.

Public debt June 30, 1912: External, 315,360,585 pesos; internal, 134,763,710; floating, 482,574; total, 450,606,869. Charges on external debt, 29,701,647 pesos; on internal, 14,389,655; total, 44,091,302.

Navy. The navy in 1913 included: One gunboat (*Veracruz*, built in 1903), of 1000 tons; 2 gunboats (*Bravo* and *Morelos*, 1904), of 1200 tons each; one small cruiser (*General Guerrero*, 1909), of 1630 tons; one transport (*Progress*); 2 corvettes (*Yucatán* and *Zaragoza*); 3 dispatch boats, and several small vessels of little value.

Government. Under the constitution of February 5, 1857, last modified April 25, 1912, the Mexican republic is a federation of states which retain their autonomy in local affairs. The legislative powers rests with a congress of two houses: The Senate (fifty-six members, elected by direct vote for four years, two for each state and the Federal District); and the Chamber of Deputies (233 members, elected by direct vote for two years). The constitution provides that the president and vice-president be elected indirectly for six years. The president is assisted by a cabinet of eight members. Gen. Porfirio Díaz was president during 1877-80 and from 1884 until his resignation May 25, 1911, which was forced by the revolution under Francisco I. Madero. Díaz was succeeded by the secretary for foreign affairs, Francisco León de la Barra, as acting president. In October, 1911, Madero was elected president and on November 6 was inaugurated for the term ending November 30, 1916 (the unexpired term of Díaz). The vice-president was José Marino Pino Suárez. On February 23, 1913, Madero and Pino Suárez were murdered, after General Victoriano Huerta had proclaimed himself (February 18) acting president. See *History*.

Army. Conditions in Mexico during the year 1913 naturally did not conduce to a permanent organization and development of the federal army. One of the first measures taken by President Huerta was to reorganize the federal forces. Instead of the military zones previously existing ten military territorial districts, or divisions, under the orders of a commander-in-chief were established. These were as follows: Division of the Peninsula, headquarters at Mérida; Division of the Orient, headquarters at Puebla; Division of the Federal District, headquarters at Mexico; Division of the South, headquarters at Iguala; Division of the Centre, headquarters at Leon; Division of the West, headquarters at Guadalajara; Division of the Yaqui, headquarters at Torin; Division of the North, headquarters at Chihuahua; Division of the Nazas, headquarters at Torreon; Division of the Bravo, headquarters at Monterey.

Previously, in normal times, an army of 28,000 was held as the approximate strength of the Mexican national army and it was thought that prior to the fall of President Díaz a well-disciplined force with a fighting strength of about 40,000 was available, yet in the Madero revolution hardly more than 12,000 men were put into the field by General Díaz, and these were badly clothed and maintained. It was obvious that further disorganization of the national forces had taken place and, notwithstanding the modern weapons, some of which were indeed excellent, the army was to be considered more as a guerrilla force than as a well-organized and compact aggregation of fighting units. This, of course, did not diminish their effectiveness for certain kinds of warfare, especially in defensive fighting in the mountainous districts over which they were called to operate either in conflict with insurrectionary bands or any possible invader. For the former organization of the Mexican army, as it existed prior to the insurrections, see Year Book for 1911.

Railways. The political troubles in Mexico during the year had their effects on railway construction. The projects in hand involved the Vera Cruz-Tampico line of the National Railways and the Vera Cruz-Tabasco and Campeche, and the Santa Lucrezia extension on the Vera Cruz and Ishim Railway. There was railway construction near Acalpulco on the Pacific Coast.

History

The February Revolution. Swept into the presidential office by a revolutionary movement, Francisco I. Madero proved neither strong enough to crush out insurrection nor determined enough to give to the tax-burdened peasantry and the land-hungry peons the constitutional liberties and the little plots of freehold land they demanded. He failed moreover to command the respect or to buy the loyalty of the army, and popular generals more powerful than he had only contempt for his weakness and scorn for his talk of reform. Unkind critics hinted that the Madero family with its vast estates was interested in the spoils of office, but not in the lot of the peon. With his support thus weakening, Madero might well have taken heed, when in October of 1912, General Felix Díaz, nephew of the famous Porfirio Díaz, raised the standard of revolt at Vera Cruz. The Díaz insurrection was all too easily suppressed. Filled with a false sense of security, and inclining rather to clemency than to harshness, President Madero allowed the death sentence on General Felix Díaz to be suspended. The confidence of the government was rudely shocked when, on February 9, 1913, the military cadets in Mexico City mutinied and liberated from prison both General Díaz and General Bernardo Reyes, an old-time enemy of Madero. In the street fighting that followed, General Reyes was killed and many civilians, including two American women, were killed or injured. The rebels under General Díaz secured a strong position in the arsenal, which they defended against four attacks of the loyal, federal troops on February 11. It then became the turn of the federals to defend themselves, in the National Palace, against the artillery and machine-guns of Díaz's soldiers. As the street-fighting showed no signs of cessation, the ambassadors insisted that foreign residents be allowed to escape, and a twenty-four-hour truce was arranged on the 16th. Fighting was resumed before the truce had expired. On the 17th General Blanquet arrived in the city with 1200 federal troops, but instead of coming to the assistance of the president he joined with General Victoriano Huerta, President Madero's commander-in-chief, in overthrowing the government. President Francisco Madero, Vice-president José Pino Suarez, and Finance-Minister Gustavo Madero were arrested, and, on February 23, the president and vice-president were "shot while attempting to escape." On February 19 General Huerta, assuming the title of provisional president, called a session of Congress for April and, two days later, formed a cabinet with Señor de la Barra as minister of foreign affairs; Señor Garcia Granados, interior; Señor Rodolfo Reyes (son of General Reyes), justice; Señor V. Estanol, education; Señor T. Obregon, finance; and Señor de la Fuente, public works. In the troubled weeks that followed many prominent Maderistas, as the friends of Madero were called, escaped, or were executed, or met an "accidental" death.

The Huerta Government. The provisional government was practically an army government with General Huerta as recognized head and Blanquet and Díaz as silent partners. General Díaz, the instigator of the revolt, modestly, or shrewdly, effaced himself before General Huerta, possibly thinking to let the latter bear the responsibility, risk, and not inconceivable odium of the provisional régime. and hoping himself to be regularly elected as the next constitutional president. In the meantime he supported the provisional president, and if the report be true, appointed half the cabinet.* It was believed that the submission of the troublesome rebels Orozco, Salazar, and Emilio Gomez was a fruit of the Díaz-Huerta alliance. General Díaz grew less friendly as General Huerta gained power. The presidential elections, in which General Díaz hoped to be victor, were at first planned for July 27, then deferred till October 26, and their farcical consummation at once defeated Díaz's hopes and completed his breach with Huerta. Díaz's friends had resigned from the cabinet, he himself had resigned from the army, and late in the year he sought refuge on an American warship at Vera Cruz. Subsequently in Havana, Cuba, he was wounded in a violent encounter with supposed agents of Huerta. In order that General Díaz might be disposed of, the story has been somewhat interrupted. Returning to the newly established provisional government, it is interesting to observe that General Huerta justified his seizure of power by accusing Madero of corruption, and promised to correct the flagrant abuses of the Madero administration, to promote real reform, and to welcome and protect foreign capital. This last engagement is worthy of particular notice, in the light of later allegations that the February revolution was favored, if not engineered, by foreign financiers seeking concessions in Mexico. More specifically it was charged that a British syndicate interested in the exploitation of the rich Mexican oil-fields looked for new and important concessions from Huerta. Oil and similar economic interests were asserted to underlie the gracious attitude of Great Britain and the unsympathetic bearing of President Wilson toward General Huerta. The refusal of the United States to recognize the provisional government will be discussed later; it will suffice to remark here that it rendered almost impossible the negotiation of a foreign loan and greatly impeded the "pacification" of the rebellious northern states of Mexico. Money was needed to pay the soldiers, to buy ammunition and arms, to pay indemnities, to support the administration. Señor de la Barra found it impossible to place the loan of $100,000,000 authorized by Congress, and although loans were frequently mentioned in later unreliable reports, the financial situation of the government was decidedly grave.

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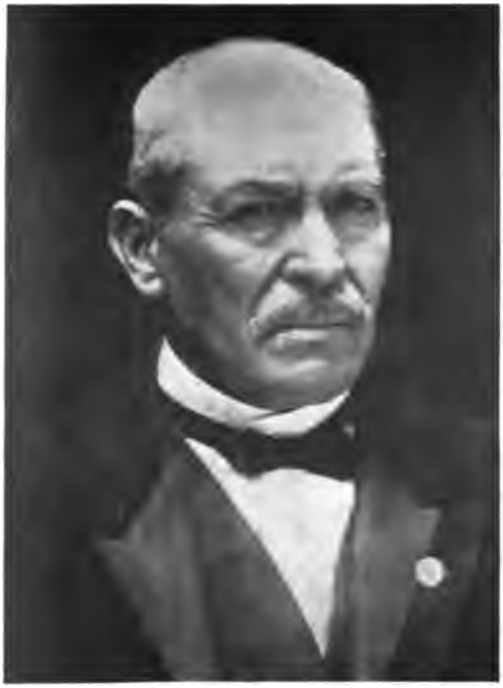
* Some time after the February revolution, General Díaz was sent as special envoy to Japan, but, failing to obtain a reception at Tokyo, returned to Mexico.

The Counter-revolution. The revolt against Huerta assumed threatening proportions during the spring and summer. From the very first the Huerta government had been repudiated as unconstitutional by the northern states, where the party of Madero, the party that had consistently agitated for agrarian reform, was in power. Calling themselves Constitutionalists, the adherents of this party rose in arms against the federal government, and in a platform adopted on March 26 the Constitutionalist leaders repudiated the provisional government, and named Don Venustiano Carranza, governor of the state of Coahuila, as commander-in-chief of the Constitutionalist armies. The Constitutionalists stood in general for the interests of the small farmer and the peon, demanding the division of large estates, with compensation to the owners, the alleviation of the tax-burden which at present bears with crushing weight on the poorer agriculturists, the establishment of a rural system, and the promotion of education for the poor. If these things could not be done by peaceful methods—as had been expected under the Madero régime—the Constitutionalist armies would not hesitate at violent methods. Where they could, they did seize and divide the properties of absentee landlords. The Constitutionalist movement was strongest in the northern states of Coahuila, Chihuahua, Sonora, and Sinaloa. Everywhere the rebellion against Huerta had an agrarian aspect, and it was naturally so, for, as Mr. J. K. Turner pointed out in an article in the *Metropolitan Magazine* (May, 1913), "Seven thousand families hold practically all the arable land. . . . In Chihuahua . . . . the Terrazas family holds nearly twenty million acres. . . . The greater portion of the state of Yucatan is held by thirty men. . . . The Madero holdings in Coahuila run into millions of acres." In Sonora, the Constitutionalists defeated small federal forces at Nacozari and at Nogales in March, and at Naco in April, and then invested Guaymas, on the coast, practically the only federal stronghold left in the state. In Chihuahua, Juarez at the north and Chihuahua city in the centre were the objective points of the Constitutionalist campaigns. In Coahuila, the town of Torreon was the scene of a protracted battle early in August. In Nuevo Leon, General Aubert with several hundred Federals surrendered to the insurgents in May. Meanwhile in Tamaulipas, the Constitutionalists captured Matemoras. Durango joined the rebellion. Matehuala and the capital of San Luis Potosi were lost to the Federals. Zapata continued to terrorize Morelos. Insurrections were also reported in Zacatecas, Tepec, Michoacan, Guerrero, and Campeche.

During the hot summer months few engagements of note were fought; October, however, witnessed renewed activity in the struggle. General Pancho Villa defeated the federal forces under General Alvarez and captured Torreon early in that month. Another Constitutionalist, General Jesus Carranza, attacked Monterey, the capital of Nuevo Leon, and after a week of fighting captured the city on October 25. It was reported also that Mazatlan, in Sinaloa, had succumbed to rebel attacks. A few days later a federal troop train was dynamited in Zacatecas.

Relations with the United States. The unsettled condition of Mexico could not be regarded with equanimity in the United States. The "Mexican situation" was the topic of countless editorials and more conversations. It was held by some that since Great Britain and France had already recognized Huerta, United States should not give moral support to the rebels by withholding recognition. At the other extreme were those who believed it the moral duty of the United States to oust General Huerta by force, or else to establish a protectorate over northern Mexico. Others advocated armed intervention in a different cause: they would have had United States soldiers assist Huerta to maintain order and to protect the property and lives of Americans in Mexico. As an argument in favor of this course it was urged that if Germany or Great Britain should intervene to protect their property in Mexico, the Monroe Doctrine would be infringed. Many laid stress on this last point especially; and insisted that the United States should at least make sure of being the first to send troops to Mexico; after the troops were there they might be used to assure a peaceful election. There was no lack of ably expounded opinions on the Mexican question, at any rate.

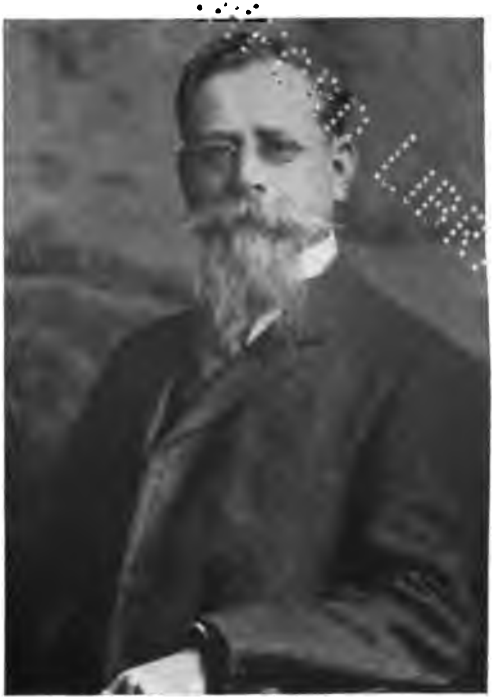
President Taft during his last few weeks in office maintained a policy of non-intervention and non-recognition. On March 4 he bequeathed the Mexican problem to his successor, President Woodrow Wilson. There were three questions to be decided: (1) Should the United States go to war because Mexican bullets happened to stray over the Arizona boundary (at Naco, April 8), or because American investors in Mexican mines and oil wells were uneasy, or because the lives of the Americans already in Mexico



Courtesy of *Review of Reviews*

VICTORIANO HUERTA

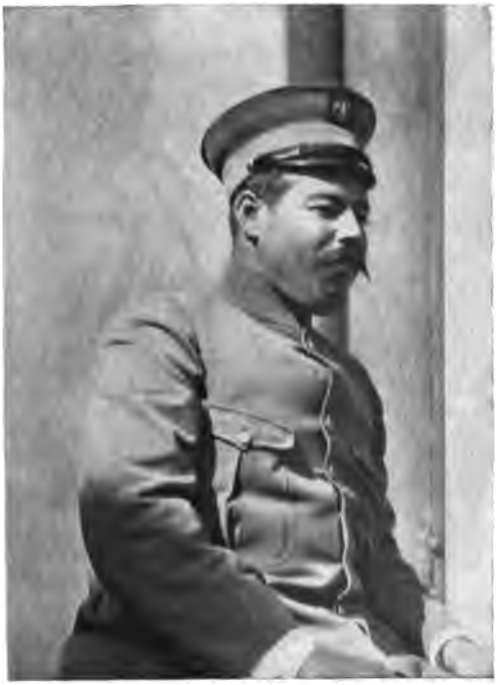
Provisional and Acting President



Courtesy of *Review of Reviews*

VENUSTIANO CARRANZA

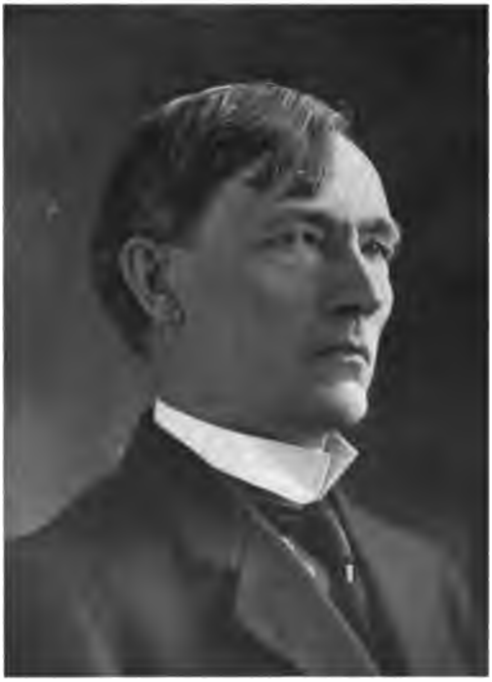
Leader of the Constitutionalists



Photograph by Paul Thompson, N.Y.

GENERAL FRANCISCO VILLA

A Commander of the Constitutionalist Forces



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JOHN LIND

Personal Representative of President Wilson in Mexico

FOUR IMPORTANT FIGURES IN MEXICO, 1913

were endangered? President Wilson, estimating the cost of war in lives and money, answered this first question in the negative. Governor Colquitt of Texas, who had ordered out the Texan militia, was induced to assume a less belligerent attitude. Nevertheless, Senator Fall introduced a resolution on July 22, calling for adequate protection of American citizens resident abroad; and, as a precaution, warships were sent to Vera Cruz on the east coast and to Guaymas on the west; and an extra military force was held in readiness at Galveston, Tex. (2). If not for her own citizens, should the United States intervene on behalf of the lives and property of German or British citizens? This question very naturally led to two others: Does the Monroe Doctrine bind the United States to police America, and is the Monroe Doctrine sacred? President Wilson did not immediately answer. (3). Should the authorities in Washington recognize Huerta in Mexico, or simply recognize disorder in Mexico? In addition to being insecure and provisional, the Huerta government was now accused of being "blood-stained." Cartoons depicted General Huerta with hands dripping gore. The charge had been frequently repeated, and was now widely believed, that Francisco Madero and José Suarez were not shot "while attempting to escape," but murdered at the order of General Huerta, and that he had not made due efforts to punish the alleged murderers. This circumstance carried great weight with the press in the United States. Speaking at Swarthmore, President Wilson said: "Nowhere can any government long endure which is stained by blood or supported by anything but the consent of the governed." Obviously President Wilson was not inclined to recognize Huerta, and it soon became evident that only an elected president could secure recognition at Washington.

Hon. Henry Lane Wilson, ambassador to Mexico, strongly favoring the provisional president, could not work in harmony with the administration, and on August 4 Secretary of State Bryan announced that the ambassador's resignation had been accepted, to take effect October 14. President Wilson now determined to utilize other than ordinary diplomatic means. Somewhat earlier he had sent Dr. William Bayard Hale unofficially to investigate the situation at Mexico City. He now sent a "personal representative," without diplomatic rank, as mediator to Mexico. The gentleman selected for this rather delicate mission was ex-Governor Lind of Minnesota. Mr. Lind arrived in Mexico City August 10, instructed* to inform Huerta that since, "It became daily more and more evident that no real progress is being made toward the establishment of a government at the city of Mexico which the country will obey and respect . . . ."; and since "the present situation in Mexico is incompatible with the civilized development of Mexico herself, and with the maintenance of tolerable political and economic conditions in Central America"; all parties should assent to a settlement upon the following terms: (1) An immediate cessation of fighting throughout Mexico, and a definite armistice solemnly entered into and scrupulously observed; (2) security given for an early and free election in which all will agree to take part; (3) the promise of General Huerta not to be a candidate in the presidential election; and (4) the agreement of all parties to abide by the results of the election and coöperate in the most loyal way in organizing and supporting the new administration. The United States would recognize and assist a government thus established.

In declining so well-intentioned an offer of mediation, Huerta's foreign secretary, Señor Gamboa, took pains to explain on August 16, in a document of extraordinary length, that President Wilson misconceived the situation, that it was impossible to arrange an armistice with the rebels; that the United States ought not to allow the rebels to obtain aid and arms across the American border, and that President Wilson's discrimination against General Huerta could not be considered, "because, aside from its strange and unwarranted character, there is a risk that the same might be interpreted as a matter of personal dislike: this point can be decided only by Mexican public opinion when it is expressed at the polls." The provisional government was legal, Señor Gamboa concluded, and demanded recognition.

In the face of this rebuff, Mr. Lind persisted in his pacific endeavor. His second note to the provisional government asked merely for an assurance that a constitutional election would be held in which General Huerta would not be a candidate. As an inducement to the acceptance of these terms, a virtual promise of a loan was made. In reply, Señor Gamboa explained that under the Mexican constitution the *ad interim* president could not be a candidate in the presidential election. The reference to a possible loan was stigmatized as an attempt to bribe the government.

Mediation had failed, but President Wilson continued to play a waiting game; and in the meantime American citizens resident in Mexico were supplied with third-class passage out of the country, Congress appropriating $100,000 for that purpose. On August 27 President Wilson summed up the situation to date in a special message which he read before Congress.

The Coup d'État of October 10. General Victoriano Huerta was not minded to efface himself at the invitation of President Woodrow Wilson. And had he been so minded, as once it was rumored, there were many of his adherents and many foreigners as well, ready to persuade him that only a strong man could uphold the honor of unhappy Mexico. This was the great, the only excuse for Huerta. He was to be the strong and practical man, as contrasted with the weak and theorizing Madero. Yet the strong man was not proving very successful: he was feared in one-half of Mexico, disregarded in the other; the country was in worse turmoil than ever before. The reason was not far to seek. Madero, with his proposals for agrarian and democratic reforms, had been disliked because he was weak; Huerta, the enemy of reform and of constitutionalism, could rely only on the army and the aristocracy—and the army would remain faithful only as long as it was paid. The situation was becoming untenable; nevertheless, General Huerta was prepared with a message of confidence when the Mexican Congress assembled on September 16 for its regular autumnal session. "Though there have been difficulties with the government of the United States," he said, "there have not, fortunately, been any with the American people." The work of pacifying Mexico was to go on rapidly, and the army was to be raised from 80,000 to 100,000 men. A great many members of Congress, however, were stubbornly opposed to the administration and felt genuine alarm at the course of recent events. The changes in the personnel of the cabinet were openly criticised. The friends of General Díaz had been replaced by personal adherents of the provisional president. The chief alterations were as follows: Minister of the interior, Garcia Granados, followed by Aureliano Urrutia, followed by Manuel Garza Aldape (resigned November 16); foreign affairs, Señor de la Barra (resigned July 8), Frederico Gamboa, Querido Moheno (appointed October 6); justice, Rudolfo Reyes (resigned September 12), Enrique Gerostieta; education, V. Estanol, Garcia Navanio; finance, T. Obregon, Adolfo de la Lama (sent to Europe, December 4); public works, Señor de la Fuente, José M. Lozano; war, General Mondragon, General Aureliano Blanquet; *fomento*, Señor Le Bollar.

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* These instructions were not made public until President Wilson referred to them in his special message to Congress on August 27.

To the dissatisfaction caused by the cabinet changes was added considerable anxiety about the approaching presidential election, which, by a decree of May 31, had been set for October 26. Despite the unsettled conditions throughout the country, the protests of the Constitutionalists, and the warnings of the United States, General Huerta was determined to hold the election on that date; and it was suspected that, regardless of the constitution, the provisional president would enter the electoral campaign and use the army to secure his own election. The opposition in the Congress grew daily more bitter and outspoken. Belizario Dominguez, senator from Chiapas, boldly denounced Huerta as "a blood-thirsty and ferocious military tyrant." After making his speech, Senator Dominguez mysteriously disappeared, and the Chamber of Deputies, fearing that he had met a fate similar to Madero's, decided to investigate the case. Claiming that this decision constituted an invasion of the powers of the judiciary, General Huerta dispatched Señor Aldape with a body of soldiers to dissolve the unruly assembly and to arrest the members of the Liberal and *Renovador* parties. The *coup d'état* of October 10 was successful. One hundred and ten of tne 233 deputies were imprisoned. On the following day a proclamation was published in which General Huerta justified his action: instead of supporting the administration, the Congress had caused disorder by invading the rights of the executive to name his cabinet and of the judiciary to investigate Dominguez's disappearance; instead of working to secure peace and honor for Mexico, many of the congressmen were actually fomenting and plotting rebellion; it was the duty of the president to put an end to the "anti-patriotic labor of the legislature." General Huerta accordingly called elections for a new congress to take place simultaneously with the presidential election on October 26, and meanwhile invested himself with dictatorial powers.

If the *coup d'état* strengthened Huerta's position in Mexico City, it certainly failed to improve his relations with the United States. On October 13 he was warned that any violence or injury done to the imprisoned deputies would "have a painful effect in the United States." And on the following day he was informed that President Wilson was "shocked at the lawless methods employed by General Huerta," and could not recognize as constitutional an election held under the present anarchic conditions. No inconsiderable alarm and ill-feeling was caused by the tact that Sir Lionel Carden, British minister to Mexico, chose this very inauspicious moment to present his credentials to the Huerta government, and by the rumor that he had openly censured President Wilson's non-recognition policy. The situation was exploited by alarmist press agencies, according to whose reports the powers of Europe were about to intervene in disregard of the Monroe Doctrine. Somewhat later a similar panic was caused by the presence of the British cruisers *Suffolk* and *Berwick*, the German *Hertha*, the French *Condé*, and the Japanese *Idzuma* in Mexican waters. According to official statements, however, President Wilson possessed the sympathy and support of the powers in his attempt to reach a pacific solution of the Mexican question. As the British prime minister (Mr. Asquith) said at the Guildhall in London, November 9, "There never has been and cannot be any question of political intervention on the part of Great Britain in the domestic concerns of Mexico or of any Central or South American state. . . . The utmost we can expect to do is to give whatever protection is possible on the coasts to English lives and property in times of urgent danger."

THE ELECTIONS. In defiance of President Wilson's declaration that such an election would not be recognized, and in spite of Carranza's threat that the Revolutionists would kill the man elected, General Huerta persisted in holding a general election on October 26. A new Senate, a new House of Representatives, a president, and a vice-president were to be chosen. Four presidential candidates were in the field. The National Democratic party had nominated General Felix Diaz for president and General José Luis Requina for vice-president. The Catholic candidate, Señor Frederico Gamboa, former foreign minister, with Eugenio Rascon as running-mate, promised measures for social betterment, savings-banks, and a rural credit system. Manuel Calero, a lawyer and a former ambassador to the United States, and Jesus Florez Magón, a member of Madero's cabinet, represented the Liberals. The Liberal-Republican faction supported David de la Fuente, who had been minister of public works under Huerta. Up to the last moment it had been declared that General Huerta would not run; then it was reported that "his friends" had prepared a ballot bearing his name as a candidate for the presidency, with Gen. Blanquet for the vice-presidency, and that the army would be ordered to vote this ticket. It was well-nigh impossible to obtain reliable information about the elections. Early reports indicated that the Constitutionalists had not taken part in the balloting, and, that in districts controlled by the Federals, soldiers had been practically the only voters. The New York *Sun* reproduced in facsimile what purported to be Huerta's instructions to the local authorities, ordering them so to manipulate the ballot that no returns would be made from at least two-thirds of the polling-booths in each district, and of the vote reported Huerta and Blanquet should receive an absolute majority. Later returns showed that a larger vote was cast than had been anticipated, and that General Huerta had received a majority.

Once more President Wilson protested. The

American *chargé d'affaires* at Mexico City, Nelson O'Shaughnessy, demanded the provisional president's resignation, it was believed, and, early in November Mr. Lind, who had been staying at Vera Cruz, returned to Mexico City to demand the invalidation of both presidential and congressional elections. On the 11th Mr. Lind returned unsatisfied to Vera Cruz. As far as the presidential elections were concerned, the Mexican government was compliant, and Foreign Minister Querido Moheno was credited with a statement denying General Huerta's intention of accepting the election. As a matter of fact the presidential election was declared invalid by Congress on December 9, on the ground that less than the required half of the electoral districts had sent in legal returns. The congressional elections, however, were obstinately held to be valid.

The newly elected Congress held a preliminary meeting on November 15, and met on November 20, to pass on the validity of the elections and to review the conduct of the government since October 11. As has been noted, the Congress held itself to be duly elected, and the presidential election to be void. General Huerta's term as constitutional president *ad interim* was extended by a resolution of December 9 to July 5, 1914. The review of the administration since October 11 was brief and favorable. Among the financial decrees issued by Huerta and approved by Congress were a 50 per cent. increase in the customs duties, an increased stamp tax, a tax on petroleum, a cotton tax, and a banking law (decreed November 5). This latter made the acceptance of the silver peso obligatory for any amount; the paper issued by the National Bank of Mexico and the Bank of London and Mexico was declared legal tender for all amounts, and the said banks were instructed not to redeem their paper. The object was of course to enable the banks to keep their specie reserve. The most important work of the Congress was in connection with proposed loans and concessions. A loan of $3,500,000 had been contracted by General Huerta with the Bank of London and Mexico in order to meet the obligations of the national railways. In addition to this, a loan of 100,000,000 pesos was authorized on December 10 by the House of Representatives. Two important concessions, one an oil concession, the other a railway project, were considered. The latter, approved by the House on December 6 authorized Belgian *Compagnie de Chemins de Fer Secondaires* to construct 3000 or more miles of railways in Mexico. It was frequently asserted that President Wilson's protests against the meeting of the recently "elected" Congress were inspired by his anxiety to prevent the ratification of such concessions. The assertion is quite in accord with President Wilson's Mobile speech (October 27) in which it was asserted that "the United States will never again seek one additional foot of territory by conquest," but rather act as the friend and champion of the Latin American countries, to "emancipate them from the control of foreign financial interests." Ambassador Page at London reiterated the doctrine on December 6. Referring to the Monroe Doctrine and American republics, he said: "We have now developed subtler ways than taking their lands. There is the taking of their bonds, for instance. Therefore, the important proposition is that no sort of financial control can with the consent of the United States be obtained over these weaker nations which would in effect control their government." This is the newest interpretation of the Monroe Doctrine.

Meanwhile General Huerta's position at Mexico City was weakening. A serious split in his cabinet had been caused by Home Minister Señor Aldape's inclination to placate the United States, and Señor Aldape had been forced out of the ministry on November 16. Popular sentiment demanded the release of the 83 former deputies still in prison. In spite of the new banking laws, the financial situation was serious and a legal holiday had to be declared in order to stop a run on the banks. There were many and contradictory rumors of loan negotiations, but late in December it was reported on good authority that Huerta had no funds to pay his army. To be ready for emergencies he transferred his residence from the National Palace to the more defensible Castle of Chapultepec.

On December 2 President Wilson made an important statement to Congress. "There can be no certain prospect of peace in America," he said, "until General Huerta has surrendered his usurped authority, until it is understood on all hands that such pretended governments will not be countenanced or dealt with by the government of the United States. . . . We are friends of constitutional government in America . . . . because in no other way can our neighbors, to whom we would wish in every way to make proof of our friendship, work out their own development in peace and liberty. Mexico has no government. The attempt to maintain one at the city of Mexico has broken down, and a mere military despotism has been set up which has hardly more than a semblance of national authority." As for Huerta, "he has not succeeded . . . . the collapse is not far away. We shall not, I believe, be obliged to alter our policy of watchful waiting, and then, when the end comes, we shall hope to see constitutional order restored in distressed Mexico by the concert and energy of such of her leaders as prefer the liberty of the people to their own ambitions." Who might such high-minded leaders be? The answer would seem plainly to be the Constitutionalists, with whom, by the way, President Wilson's agent, William Bayard Hale, had conferred at Nogales on November 12. At the close of the year, then, Washington was waiting for the Huerta régime to collapse.

THE CONSTITUTIONALIST VICTORIES. In the northern states the Huerta régime had already collapsed, and Venustiano Carranza's rival government, with its seat at Hermosillo in the state of Sonora, was issuing paper money and controlling most of the states of Sonora, Chihuahua, Coahuila, Sinaloa, Durango, Tepic (territory), Zacatecas, and San Luis Potosi; while near Mexico City the Zapatistas were terrorizing Guerrero, Puebla, and Morelos; and in Campeche ex-Governor Brito led 2000 rebels. Active campaigns were directed by the Constitutionalist General Obregon in Sinaloa, Pancho Villa in Chihuahua, Blanco in Tamaulipas, Aguilar in Vera Cruz, and Sanchez in Michoacan. General Obregon, with a force estimated at 8000, captured Culiacan in Sinaloa early in November. Mazatlan, the remaining federal stronghold in that state, was captured November 27. At the very close of the year Tepic was sacked by the rebels; but Guaymas on the coast of Sonora still held out. The greatest attention was attracted by the campaign of Pancho Villa, without doubt the foremost military leader of the Constitutionalists. About November 1 he moved against the city of Chihuahua with some 9000 men. His assaults on the 6th, 7th, and 8th were beaten off, but instead of despairing, he suddenly advanced northward and captured the important border town of Ciudad Juarez, taking 125 prisoners, and a quantity of ammunition. The federal army from Chihuahua, attempting to retake Juarez, was repulsed on November 24-25 in a battle about 12 miles south of that town. A few days later the Federals evacuated Chihuahua and Pancho Villa entered the city in triumph on December 8. It was expected that the federal force, having fled to Ojinaga, would be once again defeated by Villa, and that the victorious rebel would then march south in somewhat tardy fulfillment of his boast that he would eat Christmas dinner in Mexico City. The constitutionalist armies in the east were busy. Lucio Blanco and Pablo Gonzales captured Ciudad Victoria, the capital of Tamaulipas, on November 18. They then proceeded against Monterey, which had again fallen into federal hands, and in December occupied Linares, and Montemorelos, on the road to Monterey. Somewhat further south, in the state of Vera Cruz, the revolutionists attacked Tantoyuca on November 11, and on November 13 General Candido Aguilar with 1500 men captured the port of Tuxpan. Lord Cowdray, a British financier whose firm goes by the name of Pearson and Son, L'td., appealed to the United States to protect his valuable oil interests at Tuxpan; no damage was reported. On December 10 the important Gulf port of Tampico was attacked by Constitutionalists. Admiral Fletcher, whose flagship, the *Rhode Island*, lay in Tampico harbor, feared damage to the business property in Tampico and ordered cessation of fighting on December 12. On the following day the siege was raised.

MEYER, Prof. Adolf, M. D. See Insanity.

MIAMI UNIVERSITY. An institution of higher education at Oxford, Ohio, founded in 1809. The enrollment in the university in 1913 was 808. Of these 382 were in the College of Liberal Arts and 226 in the Normal College. The faculty numbered 50. A. H. Upham was appointed professor of English in place of G. B. Woods, resigned. The productive funds of the university amount to about $210,000. The library consists of 35,000 volumes. The president is Raymond M. Hughes.

MICHIGAN. Population. The population of the State in 1910 was 2,810,173. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 2,936,618.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	1,675,000	56,112,000	$37,595,000
	1912	1,625,000	55,250,000	81,492,000
Wheat	1913	835,000	12,776,000	11,371,000
	1912	700,000	7,000,000	6,720,000
Oats	1913	1,500,000	45,000,000	17,550,000
	1912	1,485,000	51,826,000	17,103,000
Rye	1913	375,000	5,362,000	3,324,000
	1912	370,000	4,921,000	3,199,000
Potatoes	1913	350,000	33,600,000	17,808,000
	1912	350,000	36,750,000	15,068,000
Hay	1913	2,400,000	a2,520,000	33,012,000
	1912	2,395,000	3.185,000	40,450,000

a Tons.

Mineral Production. The total value of the mineral products of the State in 1912 was $80,062,486, compared with $65,275,324 in 1911.

The production of refined copper in Michigan in 1912 was 231,112,228 pounds, compared with 218,185,235 pounds in 1911. The production of the mines during 1912 was 218,138,408 pounds of copper. The excess of the smelter production over that of the mines was due to the smelting of "mineral" produced prior to 1912. Michigan ranks third in the yearly production of copper, and second in the total production. At the close of 1912, 5,205,717,206 pounds of copper, or 29.53 of the total output of the United States, had been produced. The entire output is from the Keweenaw or Lake Superior district. Also the district has been an active producer for 65 years. Most of the older mines still had large reserves of ore, and new mines were being opened while much territory remained to be prospected. The most important new developments during the previous few years were made in the southern part of the district, and active development was continued in this section during 1912. (See Copper.) The copper mines of the State produced 528,453 fine ounces of silver in 1912, compared with 497,281 ounces in 1911. The silver output is mainly from the electrolytic refining of the copper produced. Of the total output, Houghton County produced 475,543 ounces in 1912, compared with 459,715 ounces in 1911.

The State is one of the most important in the production of iron ore. It is surpassed only by Minnesota. There were mined in 1912 11,191,430 long tons, compared with 10,329,039 long tons in 1911.

The total coal production of the State in 1912 was 1,206,230 short tons, valued at $2,339,451. This is smaller than the production of 1911, which was 1,476,074 tons. The decrease was due chiefly to the suspension of mining from April 1 to May 31, pending the renewal of the wage agreements. The coal production of the State has decreased each year since 1907, due partly to the competition of West Virginia coal, and the small demand for lump coal in the State. There were 3113 men employed in mines of the State in 1912, compared with 3323 in 1911. Eight men were killed in the coal mines in 1912, compared with seven in 1911.

The value of the clay products of the State in 1912 was $2,545,498, an increase of $461,566 over 1911. The leading clay product is common brick.

Education. The total school population in 1912 was 795,423. The total enrollment was 555,137, and the average daily attendance was 164,556. The male teachers numbered 2708, and the female teachers 16,116. The average salary of men teachers was $82.33 a month, and of women teachers $54.97. The laws passed by the legislature of 1913 included provisions for changing the boundaries of or consolidating districts, a provision amending the compulsory school law, and several measures relating to raising funds for schools.

Charities and Corrections. The institutions under control of the State board of corrections and charities, with their populations on June 30, 1912, were as follows: Kalamazoo State Hospital, 2015; Pontiac State Hospital, 1391; Traverse City State Hospital, 1398; Newberry State Hospital, 836; Ionia State Hospital, 439; State Psychopathic Hospital, 47; Home for Feeble-minded and Epileptic, 981; Michigan State Prison, 762; Michigan Reformatory, 578; Branch Prison, 311; Industrial School for Boys, 779; Industrial School for Girls, 341; State Public School, 179; School for the Blind, 144; Employment Institute for the Blind, 81; School for the Deaf, 309; Michigan Soldiers' Home, 872; State Sanatorium, 66. The total disbursements for the current expenditures for these institutions for the fiscal year ending June 30, 1912, was $2,480,179. The legislature of 1913 passed many important measures and amendments relating to the administration of charities and corrections. The juvenile court law, passed in 1907, was amended. Provision was made for sending dependent and neglected children to the State Public School and to institutions approved by the State board of charities and corrections. Provision was also made for the medical treatment of children of indigent parents.

TRANSPORTATION. The total mileage of steam railways within the State on June 30, 1912, was 9015.41. The lines having the longest mileage are the Père Marquette, 1828; Michigan Central, 1216; Grand Trunk System, 861; Lake Shore and Michigan Southern, 606; Chicago and Northwestern, 519; Duluth, South Shore, and Atlantic, 505. The mileage of electric railways in the State on June 30, 1913, was 1223.28.

POLITICS AND GOVERNMENT. The Michigan legislature met in biennial session on January 1, 1913, and went through the form of reëlecting United States Senator William Alden Smith. Senator Smith was reëlected by the unanimous vote of all the Republican legislature. The legislature subsequently ratified the amendment to the Federal Constitution providing that hereafter United States senators shall be elected by direct vote of the electors.

Under Michigan's county local option system, 12 counties, some "wet" and some "dry," voted again on the question of continuing to be "wet" or "dry" at the April, 1913, election. The result was a net gain by the "wets" of two counties. At the present time, 33 of the counties of Michigan are "dry" and 50 are "wet." See also LIQUOR REGULATION.

At the April election of 1913, Joseph B. Moore and Joseph H. Steere were elected justices of the Supreme Court by pluralities of 28,039 and 29,424 respectively. Both are Republicans. Other State officers elected on the Republican State ticket at the same time were university regents, Walter H. Sawyer and Victor M. Gore; superintendent of public instruction, Luther L. Wright; member of State board of education, Frank Cody; members of the State agricultural college board, Alfred J. Doherty and Robert D. Graham; State highway commissioner, Frank F. Rogers. The pluralities of each of these was about 30,000. Congressman H. Olin Young, Republican, of the 12th Michigan district, relinquished his seat in the national House to William J. MacDonald, national Progressive, while MacDonald was contesting it. Young, on the face of the returns, was declared elected by 458, and the contest in the national House was based on the fact that several hundred and more votes intended for MacDonald had not been counted for him because of a minor misspelling of his name on these ballots.

LEGISLATION. The legislative session of 1913 passed four amendments to the State constitution, namely:

(1) Providing that hereafter the State constitution can be amended by the initiative and referendum without recourse to the legislature.

(2) Providing that statute laws may be enacted by the initiative and referendum.

(3) Providing ways for the recall of all elective public officers, excepting judges of courts.

(4) Providing for woman suffrage.

The first amendment was ratified at the State election in April, 1913, by a majority of 42,377. The second amendment was ratified at the same election by a majority of 92,331. The third amendment was ratified at the same election by a majority of 62,669. The woman suffrage amendment was rejected at the same election by a majority of 96,144, the vote on this amendment being 168,738 for; 264,882 against. Woman suffrage had been submitted to the electors of the State only five months previous, namely, November, 1912. It then came within 760 votes of carrying, the vote being 247,375 for; 248,135 against.

STATE GOVERNMENT. Governor, Woodbridge N. Ferris, Dem.; Lieutenant-Governor, John Q. Ross; Secretary of State, Frederick C. Martindale; Treasurer, John C. Haarer; Auditor, O. B. Fuller; Attorney-General, Grant Fellows; Adjutant-General, R. C. Vandercook; Superintendent of Public Instruction, F. L. Keeler; Commissioner of Insurance, Calvin A. Palmer—all Republicans, except Ferris and Vandercook.

JUDICIARY. Supreme Court: Chief Justice, Aaron V. McAlvay; Justices, John E. Bird, Joseph B. Moore, Joseph H. Steere, Flavius L. Brooke, John W. Stone, Russell C. Ostrander, F. C. Kuhn; Clerk, Charles C. Hopkins—all Republicans.

STATE LEGISLATURE, 1913. Republicans: Senate, 21; House, 54; joint ballot, 75. Democrats: Senate, 5; House, 35; joint ballot, 40. Progressives: Senate, 6; House, 11; joint ballot, 17. Republican majority: Senate, 10; House, 8; joint ballot, 18.

The representation in Congress will be found in the article UNITED STATES, section *Congress*.

MICHIGAN, UNIVERSITY OF. A State institution for higher education at Ann Arbor, Mich., founded in 1837. The enrollment of November 1, 1913, was 6008, in addition to 235 extension students pursuing work for credit. The faculty in 1912-13 numbered 362. There were in addition 116 graduate assistants and about 65 administrative officials. No new departments were created in 1913, but the work in architecture which has been carried on as a sub-department in the department of engineering, was separated for administrative purposes, and the engineering school is now denominated the department of engineering and architecture. The university is extending its work for the service of the people of the State not in attendance in the university, particularly in the way of extension lectures and scientific and technical tests, and through the constantly-enlarging work of the hospitals under the control of the medical departments, in which there are ordinarily about 500 patients at all times. There has been also a bureau of municipal research, which will co-operate with the Michigan municipalities in the solving of municipal problems. During the year, donors gave notice of their willingness to present to the university dormitories for women. One of these is given by the Newberry family of Detroit as a memorial to their mother, and the other anonymously by a resident of New York. These buildings will cost several hundred thousand dollars. The trust funds of the university amount to about $365,000, in addition to about $545,000, the present amount of the proceeds of the Federal land grant. The total income of the university for all purposes during 1912-13 was $1,844,952. The library contains about 325,000 volumes. The president is Harry B. Hutchins.

MILITANT TACTICS. See WOMAN SUFFRAGE; and GREAT BRITAIN, *History, passim.*

MILITARISM. See SOCIALISM.

MILITARY AERONAUTICS. See AERONAUTICS.

MILITARY PROGRESS. GENERAL. The military feature of 1913 was the increased effort made by the powers of the world in preparation for war. Nor was this effort limited to the powers. Smaller countries as well, as it were, set their houses in order, so as to be ready for a struggle that all appeared to regard as imminent. Not satisfied with the increase of 1912, Germany passed a new military law, the effect of which was to bring its peace army to a total of 870,000 officers and men. France balanced this German expansion by a radical change in its military system, the adoption of the so-called three-year law. Among smaller countries, Belgium, by a law passed in the spring, raised its war effective to 340,000; 150,000 for a field army, 130,000 for the fortifications of Antwerp, Liége, and Namur; 60,000 as reserve and auxiliary troops. This action on the part of Belgium was significant, and sprang from her determination to protect her neutrality should Germany, at war with France, decide to turn the fortifications of the immensely strong eastern French frontier by crossing Belgian territory. Holland reorganized its army in order to enable it to pass instantly from a peace to a war footing. Turkey, notwithstanding the defeat of its German-drilled army, again turned to Germany for the reconstruction of its forces. This step was strongly opposed by Russia. The German mission in charge of the reformation of the Turkish army, was declared to have no political bearing, but as its powers were almost supreme, and as Germany had almost exclusive control of the Bagdad Railway, it was clear that Turkey would become, or might become, a ward of the German Empire. Russia and Austria were occupied rather with the internal development of their respective armies than with any material increase of strength. It was to be noted that Austria mobilized two corps in the Slav provinces, the real purpose of which was to prevent the Slav subjects from taking a hand in the Balkan troubles.

If we except the civil war in Mexico, the war between the Balkan allies, following the termination of their struggle with Turkey, and the never-ending warfare between Spain and Morocco, it may be asserted that the peace of the civilized world remained unbroken. But as may be inferred from what has already been said, signs of tension existed. There could be no doubt that ill feeling was increasing between France and Germany. The execution by the French of a supposed German subject, serving in the Foreign Legion, and the Saverne (or Zabern) incident further excited the two nations concerned. That war between the two countries was inevitable was regarded as a commonplace in France. All Frenchmen, civilian as well as military, looked forward with calm to a struggle which they felt would involve national existence itself.

In the United States intervention in Mexico stared the American people daily in the face, and intervention, however pacific and altruistic the intention, spells war, and war of a particularly disagreeable type. Moreover, although the matter was not susceptible of proof, war between Mexico and the United States would not impossibly bring up certain Oriental issues as yet unsettled. Although no material increase of the British army was to be recorded, yet the effort made to improve this army was so successful that the French general staff reported it as being now one of the best armies in existence. A new rifle, giving a flatter trajectory, was in process of issue, and hereafter all battalions will be of four companies, instead of eight as heretofore.

The chief lesson derived from the experience gained in the Balkan War has been the importance of long-range artillery fire. Hence the assertion that hereafter armies in the field must be accompanied by guns intended for this sort of fire, and using a high explosive shell.

UNITED STATES. A great step forward was taken in the organization, so far largely on paper, of the mobile army into divisions and brigades. The territory of the United States is itself divided into four departments: Eastern department, headquarters, Governor's Island, N. Y.; central, headquarters, Chicago; western, headquarters, San Francisco; southern, headquarters, San Antonio. Each of these has one division of troops. Hawaii and the Philippines constitute separate departments. As small and now useless posts were abandoned, it was hoped that Congress would authorize, by suitable appropriations, the concentration of troops into real units of higher rank than had been the case heretofore. The coasts of the United States were divided into three districts for the better organization of the sea-coast defense against a naval enemy. A provisional organization was provided by general orders of December 4, 1913, for an aero squadron of the signal corps. This squadron was to consist of twenty officers and ninety men, to operate a material of eight aeroplanes, sixteen tractors, and six motor-cycles. The real development of this adjunct of modern warfare was waiting, however, for congressional action. The same remark might be made of the cavalry arm of the army. Recognized as obsolete of organization, an attempt to illustrate by comparison the defects of the present system was made in mid-summer by the assembling of eight squadrons into an experimental brigade of cavalry at Winchester, Va. This brigade was intended to furnish an object lesson not only to officers and men but also to Congress.

At the close of the year the fortifications of Subig Bay were completed, those of Pearl Harbor nine-tenths, and those of Manila Bay three-fourths completed. The serious defense by high-power guns of Guantánamo Bay was under project. The plan for the protection of the Panama Canal contemplated the works at each end (actually under construction), submarine mines, field works along the coast to arrest possible landing parties, a system of roads and of sanitation. On the material side, we record the adoption of a 45-calibre automatic pistol, under manufacture at the Springfield arsenal. This pistol is loaded by a clip holding seven cartridges and slipped up through the end of the stock into position where it is held by a spring. The recoil of the pistol is used to eject the empty case and to load and cock the piece for the next shot. The model 1912 sea-coast mortar was adopted for the works at Panama. This piece is 15 calibres long as against 10 for the old models, is wire wrapped, and permits fire to be opened at nearly 25,000 yards.

GERMANY. The great event of the year, not only in Germany, but in the military world at large, was the passage, June 30, by the Reichstag, of a new military law, inspired possibly by fear of Russia. This law marks an epoch in the history of the German army. Briefly, it adds to that army 4000 officers, 15,000 noncommissioned officers, 117,000 men, and 27,000 horses. If we add various other elements, such as one-year volunteers, the peace strength rises to 835,000, and by the further inclusion of certain military employes, to 870,000. This law was, after the third reading, passed as a whole without debate, all the deputies voting for it except the Alsatians, the Poles, and the Socialists. The new law calls for an expenditure of $332,600,000, spread over the years 1913, 1914, 1915, and regularly thereafter adds nearly $50,000,000 to the war budget of the nation. The bill proposed trebling the war fund from $30,000,000 in gold to $60,000,000 in gold and $30,000,000 in silver. See GERMANY.

FRANCE. To meet this increase of the German army, following upon that of 1912, France returned to the three-year enlistment system, under which she will keep three classes with the colors instead of two. The effect of this law is to increase the peace strength of the French army by one-half. Great as is the sacrifice involved, it is nevertheless cheerfully made by the French people, in the face, however, of bitter opposition by the Socialists. A fresh attempt was made by executive order to adjust the long-standing differences between the war and navy departments as to who should have charge of the coast defense of France. The great trouble in the past was the division of responsibility; the new order did not remove it. After the fall manœuvres, held near Toulouse, a great number of officers of high rank were summarily placed on the retired list, owing to the inefficiency displayed by them. This energetic proceeding testifies to the determination of the French to be ready at all times for action.

AERONAUTICS. Interest in this subject shows no abatement. The German minister of war declared during the debate on the new military law, that aeronautics had passed the experimental stage, that its engines were really fitted for service in war and could be expected to give invaluable results. In England aviation regulations were incorporated in the new field service regulations quite as a matter of course. Even the East Indian budget appropriated $75,000 for aviation. The modest step taken by the War Department of the United States has already been mentioned. Germany, under the terms of the law of 1913, was to have seventeen balloon, and fourteen aviation companies. In addition, a corps of volunteer aviators was to be formed to serve as a reserve of aviation under the war ministry on the outbreak of hostilities. Belgium created an aviation company, an aviation school, and established an advisory committee to assist the minister of war. Brazil founded an aviation school at Rio de Janeiro for the training of army pilots. Holland for the first time appropriated money for aviation; Russia increased the pay of its aeronautic service; Spain created an aeronautic service of thirty-three officers, twenty-one technical experts, and three hundred and sixty-seven enlisted men.

Although it thus appears that all armies recognize the value of aviation, yet opinions differ as to the precise way in which this value will manifest itself. On account of the vulnerability of the present aeroplane at low speeds and altitudes, an armored aeroplane was contemplated, operated by powerful motors (400 h.p. and higher). When this type shall have become successful its machine gunfire will be dangerous. In the meantime the incendiary shell or grenade will be found useful against extended targets, and against dirigibles. It was reported, however, that Spanish aviators successfully used bombs against the Moors in Morocco. On the whole, it may be asserted that aviation fire under present conditions will prove ineffectual; and that as regards reconnaissance, much remains to be done in developing the type, and differentiating the functions of the military aeroplane before the high hopes of its partisans can be realized. Whether we consider the dirigible or the flying machine, only experience on a serious scale in a serious war will reveal the full possibilities of military aeronautics either in offense or in reconnoissance.

For additional information regarding military progress, see various countries, under section *Army;* and see also MILITIA.

MILITARY TERRITORY OF THE NIGER. A territory belonging to the government-general of French West Africa (q.v.). A commandant (1913, Lieutenant-Colonel Mouret) administers the government under control of the lieutenant-governor for Upper Senegal and Niger. In compliance with an order of June 22, 1910, Zinder was made the capital January 1, 1911; and the military territory was reorganized. See UPPER SENEGAL AND NIGER and FRENCH WEST AFRICA.

MILITIA. As will be seen in the accompanying table, there was a small decrease in the number of officers and enlisted men in the organized militia during the fiscal year 1913. This decrease was due to a large extent to the elimination of organizations which were found hopelessly inefficient and is made up for by the increase in general efficiency. In a number of States the systematic and progressive course of theoretical construction formulated and supervised by regular army officers produced good results. In many States also officers' camps were held during the year, and the results obtained indicated that these camps are a valuable means of supplementing the theoretical instruction previously imparted.

Necessity for a greater number of inspection-instructors for the organized militia had become so pressing that the Secretary of War believed that legislation should be secured providing for an increase of officers of the regular army sufficient to fill the demands of the States for these officers. Such a law contemplated the detail of an inspector-instructor for each regiment or separate battalion of infantry, and the equivalent for the other branches of the service. This would require a total of 187 officers, an excess of 109 over the present number of such detail.

The Secretary of War also pointed out in his annual report the importance of a reserve system for the organized militia. He declared that the minimum strength at which militia organizations were maintained in times of peace would render necessary a great and immediate increase in a national emergency, and this fact demanded the presence of a system of reserves from which trained men might be secured for this increase. The coöperation of the governors of the States had been secured for the organization of the entire organized militia under military divisions.

The national militia board held its annual meeting in January, 1913. The most important work of the board consisted in defining what constituted field or camp service, and in formulating rules to determine the eligibility of officers and enlisted men to attend such service and to receive pay, transportation, etc.

A bill to provide pay for the militia, introduced in Congress in 1912, failed of action. A new bill to accomplish the same purpose was introduced in the 63d Congress, but no action had been taken at the end of the year.

The strength of the organized militia on May 31, 1913, as shown in the table below, was 111,672 enlisted men, and 9130 officers, a net increase of 12 officers and 1038 enlisted men as compared with 1912.

State, Territory, or District	1912		1913		Gain (+); loss (—)	
	Officers	Enlisted men	Officers	Enlisted men	Officers	Enlisted men
Alabama	213	3,212	178	2,391	—35	—821
Arizona	51	491	45	477	— 6	— 14
Arkansas	139	1,328	111	1,248	—28	— 80
California	234	3,191	252	3,360	+ 18	+ 169
Colorado	110	1,408	137	1,309	+ 27	— 99
Connecticut	188	2,535	184	2,457	— 4	— 78
Delaware	34	339	41	441	+ 7	+ 102
District of Columbia	134	1,396	139	1,507	+ 5	+ 111
Florida	100	1,145	93	1,127	— 7	— 18
Georgia	237	2,676	223	2,675	—14	— 1
Hawaii	47	569	39	426	— 8	—143
Idaho	57	799	50	790	— 7	— 9
Illinois	521	5,586	506	5,408	—15	—178
Indiana	192	2,200	179	2,297	—13	+ 97
Iowa	215	2,825	213	2,768	— 2	— 57
Kansas	138	1,741	130	1,694	— 8	— 47
Kentucky	145	1,580	170	1,843	+ 25	+ 263
Louisiana	119	1,860	60	1,082	—59	—778
Maine	106	1,356	109	1,339	+ 3	— 17
Maryland	160	1,706	173	1,799	+ 13	+ 93
Massachusetts	443	5,421	452	5,341	+ 9	— 80
Michigan	215	2,596	199	2,551	—16	— 45
Minnesota	210	2,655	218	2,724	+ 8	+ 69
Mississippi	106	1,188	116	1,327	+ 10	+ 139
Missouri	262	2,995	256	3,320	— 6	+ 325
Montana	61	728	53	557	— 8	—171
Nebraska	118	1,171	134	1,038	+ 16	—133
Nevada *	....	....	.....	....	.....	....
New Hampshire	92	1,171	94	1,164	+ 2	— 7
New Jersey	345	3,934	330	4,052	—15	+ 118
New Mexico	64	700	49	599	—15	—101
New York	990	14,477	1,056	14,901	+ 66	+ 424
North Carolina	230	2,208	251	2,317	+ 21	+ 109
North Dakota	53	614	52	577	— 1	— 37
Ohio	518	5,462	529	5,611	+ 11	+ 149
Oklahoma	59	939	56	896	— 3	— 43
Oregon	102	1,362	109	1,358	+ 7	— 4
Pennsylvania	743	9,705	768	9,766	+ 25	+ 61
Rhode Island	100	1,257	106	1,252	+ 6	— 5
South Carolina	177	1,792	154	1,755	—23	— 37
South Dakota	83	787	71	608	—12	—179
Tennessee	128	1,735	127	1,707	— 1	— 28
Texas	171	2,578	174	2,387	+ 3	—191
Utah	34	339	31	323	— 3	— 16
Vermont	71	810	72	773	+ 1	— 37
Virginia	190	2,237	207	2,492	+ 17	+ 255
Washington	87	1,205	91	1,147	+ 4	— 58
West Virginia	100	1,218	100	1,283	.....	+ 65
Wisconsin	197	2,892	195	2,768	— 2	—124
Wyoming	53	591	48	640	— 5	+ 49
Total	9,142	112,710	9,130	111,672	—12	—1,038

* No organized militia (mustered out May 20, 1906).

MILK. An epidemic of septic sore throat, due to contamination of milk, occurred in Canton, Mass, in May; nearly 400 out of the 3000 inhabitants were afflicted and ten died. The constant recurrence of such epidemics led to attempts to discover the precise origin of septic sore throat and whether the infection was of bovine or of human derivation. Some interesting data came to light during the past year. Certain of the English epidemics were attributed to milk taken from cows with diseased udders, but it was known that streptococci are present in milk even when obtained from healthy animals and protected from contamination. The harmless milk streptococci, *S. lactious*, is normally present in the lacteal ducts and skin of the cow, but there seems to be little doubt that pyogenic streptococci are also present.

Furthermore it has been shown experimentally that bovine streptococci may acquire under certain conditions extremely virulent characteristics. Davis isolated a streptococcus from the milk of cows with mastitis, which, after being passed through three guinea pigs, acquired a capsule and produced watery growths, becoming similar in many respects to streptococcus cultures from patients with septic sore throat. Rosenow found that cultures from the slime of milk separators were non-virulent to animals, but that if the slime itself were injected into animals these usually died of streptococcus poisoning, the blood yielding pure cultures of streptococci, which, being inoculated into animals, became encapsulated and acquired cultural qualities similar to the strains from epidemic septic sore throat. These again being artificially cultivated acquired the characters typical of *S. pyogenes.* Rosenow also found that in typical strains of streptococcus pyogenes from various sources, both human and bovine, growth was delayed on inoculation into milk at low temperature, and would assume characteristics peculiar to the strains isolated from cases of epidemic sore throat; and that there resulted some increase in virulence toward animals. This observation is important since it indicates that milk under certain conditions may encourage the development of a pathogenic quality in the streptococci that may get into it. (See also DAIRYING.)

MILLER, JOAQUIN. An American poet, died February 17, 1913. He was born in the Wabash district of Indiana, in 1841, and was christened Cincinnatus Heine. In 1850 he went with his parents to Oregon. In his early manhood he labored in the California gold mines, and in 1855 volunteered for the filibustering expedition into Nicaragua led by Walker. For several years he lived among the Indians on the Pacific coast. Returning to Oregon in 1860, he studied law, but soon left the practice of his profession to spend two years as an express messenger in Idaho. He then became editor of a paper called the *Democratic Register,* in Eugene, Ore. This was suppressed on account of its disunion sentiments, and Miller removed to Canon City, Ore., where he practiced law, and in 1870 was appointed county judge of Grant County. During these years he had written many poems, and with a collection of these he went to London, and there published his first book, which met with a favorable reception. This was entitled *Songs of the Sierras.* In London he affected the costume of the West, including flannel shirt and sombrero, and received marked attention as a literary lion. Returning to the United States, he went to Washington, and spent some time there in newspaper work, but in 1887 he returned to California, establishing a home at Oakland. He visited Alaska in the early days of the discovery of gold in the Klondike. His home in Oakland was one of the notable features of that city, and in it he entertained many celebrities. His principal poetical works in addition to his *Songs of the Sierras* mentioned above, are: *Songs of the Sunland; The Ship of the Desert; Shadows of Shasta; Songs of Far Away Lands; The Building of the City Beautiful; Chants for the Boer.* He also wrote a novel, *The Danites in the Sierras,* from which he made a play, *The Danites,* which enjoyed a long run in New York City. He also wrote several other plays, including *The Silent Man* and *Tally-Ho.* The name "Joaquin," under which his writings appeared, he is supposed to have borrowed from a Mexican bandit, Joaquin Murietta, a man widely known and dreaded among the California miners, but admired and defended by Miller.

MILLER, ROSWELL. An American financier and railway official, died January 3, 1913. He was born in Harford, Pa., in 1843; received a public school and academic education; when still a youth, entered the railway service on the Cairo and Vincennes Railway; and rose to be secretary and later superintendent of this road. In 1882 he became second vice-president and treasurer of the Chicago and Indiana Railway; in the following year assistant to the general manager of the Chicago, Milwaukee, and St. Paul Railway Company; in succession assistant general manager, general manager, and president of this road. From 1889 until the time of his death, he was chairman of the board of directors. He was one of the best-known American railway officials.

MILNE, JOHN. An English seismologist, died August 5, 1913. He was born in 1851 and was educated at King's College, London, and the School of Mines. After a wide experience as a mining engineer in Cornwall and Lancashire, and in various parts of Europe and America, he was appointed in 1875 to the chair of geology and mining in the Imperial College of Engineering at Tokyo. Although he continued to lecture on geology for nearly twenty years, he became absorbed in the study of earthquakes, and in 1880 founded the seismological society of Japan. He constructed instruments of many types to aid in his observations, the cost of which was in part defrayed by the British association. Professor Milne collected a large number of books and pamphlets relating to earthquakes, and had equipped with instruments the finest seismological observatory in the world. These instruments he hoped to bring with him on his return to England after nearly twenty years' absence, but they were unfortunately burned before his departure. In 1895 he returned to England, and at Shide, he began the construction of an observatory. His work soon became known throughout the world, and proposals were made for the establishment of a network of seismological stations all over the world. This plan he took up with great energy, and his horizontal pendulum, known as the Milne seismograph, was improved and became the standard instrument. Within a dozen years nearly fifty pendulums were established in all parts of the world, chiefly in Great Britain and the colony. Each year Professor Milne analyzed the records obtained from these instruments, and he had determined approximately the position of the origin of fifty-seven world-shaking earthquakes a year. His published writings include *Earthquakes* (1883); *Seismology* (1898); *The Miner's Hand Book;* and many articles and pamphlets on seismology, geology, mineralogy, and mining.

MINERALOGY. The application of the methods of physical-chemistry to the study of minerals has been one of the more significant developments in the recent progress of this science. As a leading example may be cited the work of Day and Allen of the geo-physical laboratory of the Carnegie Institution with reference to the feldspar minerals, an investigation that received quite as much attention from the geologist as from the mineralogist. In their determination of the thermal constants it was not found practicable at the time to establish the magnitude of the melting interval for the plagioclase group, but information on that point was given by N. L. Bowen in a published research. In brief the experiments indicated that the melting temperatures lie between 1550°C for the pure calcium variety anorthite, and 1100°C for the sodium feldspar albite. Mixtures of the two species show an interval between the beginning and completion of melting which varies with the composition, amounting to 63° for a plagioclase made up of equal parts of the albite and anorthite molecules. Such a mixture, if cooled quickly, solidifies in homogenous crystals; on slow cooling, however, solidification begins at 1450°, when crystals with a predominant amount of the anorthite molecule separate; from that point by progressive cooling the composition moves continuously toward the proportion of one to one and at the temperature of 1287° the remainder crystallizes.

The theory of solid solutions, as developed principally from investigations of metallic alloys, has been considered by some mineralogists to afford a possible explanation for the chemical anomalies exhibited by certain species. According to H. W. Foote and W. M. Allen, chrysocolla shows no close agreement with the commonly-accepted formula of one part copper oxide, one of silica and two molecules of water, even when the purest material obtainable is used for analysis. As a consequence they were inclined to the opinion that this mineral, in company probably with many other amorphous minerals, is chemically similar to gelatinous precipitates as made in the laboratory. Such substances are of the nature of solid solutions of water in the oxide or some lower hydrate; they have no fixed composition, but a variable one depending on the conditions of their formation.

From the number of text-books issued it would appear that mineralogy was becoming a rather popular subject of study in schools and colleges. A work that makes a more limited appeal, though of the greatest importance to the advanced student and specialist, was a treatise by Victor Goldschmidt on the crystal forms of minerals. This work was designed to cover the whole field of previous research, inclusive of all material relating to the growth, habit, and other problems connected with crystals, and will consist of five or six volumes of figures and as many of text. The first installment was issued in 1913.

New Minerals. The list of species described for the first time during the year under review follows: *Custerite*, a hydrous fluosilicate of calcium, occurs as a contact metamorphic product in a copper mine at Mackay, Idaho. It is pale greenish gray, crystallizes in the monoclinic system, and has a formula like that of cuspidine with an added molecule of water. A series of new minerals from some remarkable pegmatite occurrences in Madagascar include *betafite* and *samiresite*, which contain radium in considerable quantity. The former is an oxide of niobium and titanium, and the latter contains tantalum oxide as well. Both are isometric and radioactive. *Ampangabeite* is made up of a number of the rarer earths, inclusive of uranium, yttrium, and erbium, besides those previously mentioned, and iron. *Manandonite* is a hydrous silicate of aluminum, beryllium, and lithium. *Plumboniobite* from the mica mines of Morogoro, German East Africa, contains uranium, yttrium, lead, and other bases. *Uhlegite* is a mineral allied to keilhauite and zirkelite, and occurs in black octahedra near Magad Lake, East Africa. *Urbaite*, a sulphide of tantalum, arsenic, and antimony, is from Allchar, Macedonia. A complex basic phosphate of lead and copper from Tsumeb in German Southwest Africa has been described by two mineralogists under the names of *Prestite* and *Tsumebite*. *Hutchite* from Binnenthal, Switzerland, is a lead-gray, monoclinic mineral of undertermined composition. *Palaite*, *stewartite*, *salmonsite*, and *sicklerite* are new manganese phosphates from the tourmaline locality at Pala, Cal. *Arsenoferrite* is an isometric form of iron diarsenide, isomorphous with pyrite. It comes from Binnenthal, Switzerland. *Hokutolite* is a radio-active compound of lead and barium sulphides chiefly, found as an incrustation from the hot waters of the Hokut River, Formosa. A variety of triclinic pyroxene that contains about 20 per cent. of manganous oxide has the name *pyroxmangite;* it comes from Iva, Anderson County, South Carolina. *Skemmatite* is an associated hydrous oxide of manganese and iron. *Hodgkinsonite*, a hydrous silicate of zinc and manganese, comes from the famous mineral locality at Franklin Furnace, New Jersey.

MINERAL PRODUCTION of the United States. The details of the mineral production of 1912 are contained in the accompanying table. The following is a general summary of the production, based on the data by the United States Geological Survey.

With pig iron, the basis of iron values, and the refined metals (smelter production), the basis of values for gold, silver, copper, lead, zinc, etc., the total value of the mineral production of the United States was $2,243,630,326, compared with $1,927,532,128 in 1911. The four leading States are Pennsylvania, Ohio, Illinois, and West Virginia. With iron ores as the basis of iron production, and with the recoverable metallic contents of ores as the basis of other metal output, the total value of the mineral production in 1912 was $1,917,818,084, compared with $1,681,281,031 in 1911. The same four States remain at the head but in different order, and hold their prominence because of their leading position in the production of coal. Pennsylvania outranks all others, and West Virginia, Illinois, and Ohio follow in the order given. These four States are credited with about 42 per cent. of the total value of the mineral output of the United States. California, which produces no pig iron or coal, is fifth in rank, owing to its importance as a producer of petroleum and gold. Michigan and Minnesota, as the most important producers of iron ore, rank sixth and ninth respectively in the value of their total production. Colorado, with gold, coal, and zinc as its principal products, is eleventh in rank. Montana, with copper, the leading product, stands seventh, and Missouri, with zinc and lead as its chief products, ranks tenth. In the accompanying table, the States are arranged in the order of their rank, as shown by the value of their mineral products in 1912.

It will be noted from this table that in the 48 States including Alaska and the District of Columbia, there were 44 in which the value of the mineral production in 1912 exceeded that of

MINERAL PRODUCTS OF THE UNITED STATES, CALENDAR YEARS 1911 AND 1912

Product	1911		1912	
	Quantity	Value	Quantity	Value
METALS				
Pig iron (*a*) (spot value *b*)...long tons (2,240 lbs.)	23,257,288	$327,334,624	30,180,969	$420,563,388
Ferro-alloys (*c*) ....do..	253,375	8,377,832	328,685	12,223,776
Silver, commercial value (*d*)....troy ounces	60,399,400	32,615,700	63,766,800	39,197,500
Gold, coining value (*e*)....do..	4,687,053	96,890,000	4,520,717	93,451,500
Copper (*f*), value at New York City.....pounds	1,097,232,749	137,154,092	1,243,268,720	205,139,338
Lead (*f*), value at New York City........ short tons (2000 lbs.)	405,863	36,527,670	415,395	37,385,550
Zinc (*f*), value at St. Louis....do..	271,621	30,964,794	323,907	44,699,166
Quicksilver, value at San Francisco....flasks (*g*)	21,256	977,989	25,064	1,053,941
Aluminum (consumption since 1904)......pounds	46,125,000	8,084,000	65,607,000	11,907,000
Antimony (*h*) ....short tons	....	....	....	....
Antimonial lead ....do..	14,078	1,380,556	13,552	1,311,348
Nickel (*i*), value at Philadelphia....pounds	445	127,000	....	....
Tin ....do..	(*j*)	56,635	260,000	124,800
Platinum, value at New York City....troy ounces	940	40,890	1,005	45,778
Total value of metals....	....	680,531,782	....	867,103,085
NON-METALS (Spot Value)				
Fuels:				
Bituminous coal (*k*)....short tons	405,907,059	451,375,819	450,104,982	517,983,445
Pennsylvania anthracite ....long tons	80,771,488	175,189,392	75,322,855	177,622,626
Natural gas	....	74,621,534	....	84,563,957
Petroleum ....barrels (42 gals.)	220,449,391	134,044,752	222,113,218	163,802,334
Peat	....	272,114	....	228,572
Structural Materials				
Clay products (*l*)	....	162,236,181	....	172,811,275
Cement.... barrels (380 lbs., net)	79,547,958	66,705,136	83,351,191	67,461,513
Glass sand ....short tons	1,538,666	1,543,738	1,465,386	1,430,471
Gypsum ....do..	2,323,970	6,462,035	2,500,757	6,563,908
Lime ....do..	3,392,915	13,689,054	3,529,462	13,970,114
Sand, molding, building, etc., and gravel, do..	65,308,293	19,614,850	66,889,175	21,682,737
Sand-lime brick	....	897,664	....	1,200,223
Slate	....	5,728,019	....	6,043,318
Stone (*m*)	....	77,108,567	....	78,284,572
Abrasive Materials:				
Corundum and emery....short tons	659	6,778	992	6,652
Abrasive quartz and feldspar....do..	(*n*)	....	(*n*)	....
Garnet for abrasive purposes....do..	4,076	121,748	4,182	137,800
Grindstones	....	907,316	....	916,339
Infusorial earth and tripoli....short tons	....	147,462	....	125,446
Millstones	....	40,069	....	71,414
Oilstones, etc.	....	214,991	....	232,218
Pumice ....short tons	21,689	88,399	27,146	86,687
Chemical Materials:				
Arsenious oxide ....pounds	6,264,000	73,408	6,282,000	190,757
Borax ....short tons	53,330	1,569,151	42,315	1,127,813
Bromine ....pounds	651,541	110,902	647,200	136,174
Calcium chloride ....short tons	14,606	91,215	18,550	117,272
Fluorspar ....do..	87,048	611,447	116,545	769,163
Lithium minerals ....do..	....	(*q*)	....	(*q*)
Marls ....do..	....	....	....	....
Phosphate rock....long tons	3,053,279	11,900,693	2,973,332	11,675,774
Pyrite ....do..	301,458	1,164,871	350,928	1,334,259
Sulphur ....do..	265,664	4,787,049	303,472	5,256,422
Sulphuric acid (60° Baumé) from copper and zinc smelters....short tons	438,300	2,733,696	614,073	4,240,941
Salt....barrels (280 lbs., net)	31,183,968	8,345,692	33,324,808	9,402,772
Pigments:				
Barytes (crude) ....short tons	38,445	122,792	37,478	153,313
Cobalt oxide ....pounds	....	....	....	....
Mineral paints (*o*)....short tons } Zinc oxide ....do.. }	(*o*) 143,350	7,842,583	181,154	10,069,588
Miscellaneous:				
Asbestos ....short tons	7,604	119,985	4,403	87,959
Asphalt ....do..	364,266	3,991,109	449,510	4,620,731
Bauxite ....long tons	155,618	750,649	159,865	768,932
Chromic iron ore....do..	120	1,629	201	2,753
Feldspar ....short tons	92,700	579,008	86,572	520,562
Fuller's earth ....do..	40,697	383,124	32,715	305,522
Gems and precious stones....	....	343,692	....	319,722
Graphite .... { crystalline, pounds....	4,790,000	256,050	3,543,771	187,689
Graphite .... { amorphous, short tons	1,223	32,415	923	24,344
Magnesite ....do..	9,375	75,000	10,512	105,120
Manganese ore ....long tons	2,457	24,586	1,664	15,723
Manganiferous ore ....do..	44,437	114,918	51,517	19,942
Mica .... { sheet, pounds....	1,887,201	310,254	845,483	282,823
Mica .... { scrap, short tons	3,512	40,050	3,226	49,073
Mineral waters ....gallons sold	63,788,552	6,837,888	62,281,201	6,615,671
Quartz ....short tons	87,943	155,122	97,874	191,685
Talc and soapstone ....do..	81,521	1,032,732	92,403	1,050,693
Talc, fibrous ....do..	62,030	613,286	66,867	656,270
Thorium minerals (monazite), and zircon ....pounds	3,208	802	....	....
Titanium ore (rutile) ....do..	....	....	550,000	....
Tungsten ore ....short tons	1,139	407,985	1,330	502,158
Uranium and vanadium minerals....do..	....	305,500	....	(*q*)
Total value of non-metals....	....	1,246,750,346	....	1,376,027,241
Total value of metals....	....	680,531,782	....	867,103,085
Estimated value of mineral products unspecified (*q*)	....	250,000	....	500,000
Grand total	....	1,927,532,128	....	2,243,630,326

[a] Marketed production of iron ore. 1911: 41,092,447 long tons; value at mines, $86,716,575. 1912: 57,017,614 long tons; value at mines, $107,050,153. Statistics for iron ore and, since 1910, inclusive, for marketed production of pig iron are collected by the Survey; statistics for pig iron output were furnished by the American Iron and Steel Association prior to 1910.

[b] By "spot" value is meant value at the point of production.

[c] Ferro-alloys include ferromanganese and spiegeleisen, ferrosilicon and ferrophosphorus, ferromolybdenum, ferrotitanium, ferrotungsten, and ferrovanadium. The ferro-alloys are made chiefly of foreign ores. Pig iron in 1910 included ferro-alloys valued at $7,423,502.

[d] Average price per troy ounce in 1911, 53 cents; in 1912, 61.5 cents.

[e] Prior to 1905, coining value, $20.6718 per troy ounce; in 1905, coining value, $20.671834; since 1905, coining value, $20.671834625323.

[f] The product from domestic ores only.

[g] Of 76½ avoirdupois pounds net; of 75 avoirdupois pounds net since June, 1904.

[h] Includes antimony smelted from imported ores, and also antimony contained in hard lead.

[i] Includes nickel in copper-nickel alloy, and in exported ore and matte.

[j] In 1911, from Alaska and Texas. In 1912, from Alaska.

[k] Including brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania. Coke, 1911: 35,551,489 short tons; value at ovens, $84,130,849. 1912: 43,983,599 short tons; value at ovens, $111,736,696.

[l] Value of clay mined and sold as unmanufactured clay. 1911: $3,480,763. 1912: $3,946,020.

[m] Includes limestone for iron flux, but not grindstones.

[n] Included under feldspar and quartz.

[o] Includes metallic paint, mortar colors, ocher, umber, sienna, shale, ground slate; also sublimed blue lead, sublimed white lead, zinc-lead, and leaded zinc oxide; also whiting; also zinc oxide.

[q] Includes nitrate of soda, carbonate of soda, sulphate of soda, and alum clays used by paper manufacturers; and cadmium, rutile, selenium, and uranium and vanadium minerals, estimated together at $500,000 in 1912.

TOTAL VALUE OF THE MINERAL PRODUCTS IN 1911 AND 1912

	1911	1912
Metals	$ 680,531,782	$ 867,103,085
Non-metals	1,246,750,346	1,376,027,241
Unspecified	250,000	500,000
Total	$1,927,532,128	$2,243,630,326

1911, and only six showed decrease. Five of the six States in which decreases were shown, were relatively unimportant as mining States. The first seven States maintain the same relative position in both years, with the exception of West Virginia and Illinois, whose positions were reversed in 1912. Arizona is another exception, advancing from eleventh place in 1911 to eighth place in 1912. This was due to the increased production of copper and a decided advance in the price of that metal. New Mexico shows the highest percentage of increase, a gain of over 76 per cent., due also to the increased production of copper. The combined production of all the States east of the Mississippi River, which aggregate less than 30 per cent. of the total area of the country, exclusive of Alaska, is nearly two-thirds of the total, whereas the States west of the river, which aggregate about 70 per cent. of the total area, contribute slightly more than one-third of the total value of the output. The States ranking first in the production of coal, iron ores, stone, clay products, natural gas, and most of the important non-metallic substances, except petroleum and silver, are east of the Mississippi River, while those holding first place in the production of gold, silver, copper, lead, zinc, and petroleum, and producing all of the quicksilver, platinum, and sulphur, lie west of the river.

The mineral products group themselves naturally into three special classes—metals, fuels, and structural materials. The group of metal shows a notable increase in 1912 over 1911. One item only shows a decrease, the value of gold produced in 1912 being less by nearly $3,500,000 than the output of 1911. The largest proportionate increase in value was shown in the production of copper, which, although gaining only about 13 per cent. in quantity, had a value in 1912 nearly 50 per cent. larger than in 1911. Zinc had the second largest percentage of increase in value. Silver increased about 20 per cent., and lead showed the smallest gain. The average percentage of increase for the six metals was 27, and the combined increase in value was $174,764,293.

The three fuels—coal, petroleum, and natural gas—had a combined increase of $108,740,865, or 13 per cent., in 1912 over 1911. Coal contributed the largest part of the increase, but the largest percentage of increase was in petroleum. Natural gas increased about 13 per cent.

Of the five substances grouped in structural minerals, sand and gravel showed the largest percentage of increase, with cement second, and clay products third. See articles on the separate minerals, as ALUMINUM, COPPER, GOLD, IRON, etc. See also section *Mineral Production* or *Mining* under various countries, and under various States of the United States.

MINERAL SPRINGS. See HYDROTHERAPY, and SARATOGA SPRINGS.

MINER'S ANÆMIA. See HOOKWORM DISEASE.

MINES, BUREAU OF. See UNITED STATES, *Bureau of Mines.*

MINIMUM WAGE. One of the most discussed reforms of the last few years has been the proposal to establish minimum-wage standards for women and children in a few or all industries of a State. This movement is based primarily on the doctrine that any industry worthy of continued existence should be able to pay a living wage to all the workers which it requires. Investigation has shown that beyond all question large numbers of the workers in the sweated trades have been exploited primarily because of their ignorance of American conditions and their lack of organization. Grasping employers have been able to take advantage of their poverty and ignorance, with the result that they and their families have contributed to social vice, crime, and other forms of degeneracy, and at the same time have increased the burdens of poor relief. Some material relating to this subject will be found under PROSTITUTION. In 1912 a law was enacted in Massachusetts. This was followed in 1913 by laws in California, Colorado, Minnesota, Nebraska, Oregon, Utah, Washington, and Wisconsin, and the Massachusetts act was extended and modified. The Colorado law applies to mercantile and manufacturing establishments, laundries, hotels, restaurants, telephone and telegraph offices; those of other States apply to all industries. These laws apply to women and minors under eighteen, except that the Minnesota law applies to women and minors under twenty-one, the Utah law to females, and the Wisconsin law simply to women and minors. As a rule they specify that the "necessary cost of proper living" or "necessary cost of living" shall be the principle on which wages are determined. The Utah law, however, fixes $1.25 a day as the minimum wages of experienced adults. Special license for defective women is granted in all cases except by Utah; and Wisconsin provides special licenses also for minors. By these a person partially incapacitated may be employed at less than the prescribed minimum wage. The administration of these laws is entrusted to a minimum wage commission or some other labor authority serving the same function. As a rule the law requires that that body must include a woman. On account of the great similarity of these laws, only two of them are described in detail.

OREGON. One of the most notable laws of the year was the Oregon minimum wage law enacted "to protect the lives and health and morals of women and minor workers, and to establish an industrial welfare commission and define its powers and duties, and to provide for the fixing of the minimum wage and maximum hours and standard conditions of labor for such workers." The law prohibits the employment of women or minors under conditions detrimental to health or morals, or for wages inadequate to meet the necessary cost of living. A commission of three is established to determine what conditions are inimical to health and morals, what are reasonable forms and standard conditions of employment and wages for women and minors. This commission, composed of a representative of employers, employes, and the public, has full power to make investigations and subpœna witnesses. If investigation shows that a substantial number of women are employed under detrimental conditions, the commission must call a conference composed of not more than three representatives of employers in the occupation, an equal number of employes, and an equal number of disinterested persons. This conference makes a report of findings and recommendations covering hours, conditions, and wages. It may recommend rates for piece work, a minimum wage for apprentices and learners, and the period of apprenticeship. If this report is not approved by the commission, it is recommitted to the same or another conference. When approved, the commission issues orders based thereon, which become effective after sixty days. Violation by an employer is then punishable by fine, or imprisonment, or both. Exceptions to the general minimum-wage order are permitted for a person physically defective or aged. This law represents an advance over preceding American legislation in that, unlike the Massachusetts law, it is not enforceable by public opinion, but by executive and judicial authority.

MINNESOTA. The Minnesota law provided for a commission to be composed of the commissioner of labor, an employer of women, and a woman, who is to be the salaried executive officer of the commission. A living wage is defined as sufficient to maintain the worker in health and supply the necessary comforts and conditions of a reasonable standard of living. The commissioners were authorized to investigate occupations employing women and minors. Exact registers are required of employers. Whenever the commission is satisfied that one-sixth of the women or minors in an occupation receive less than living wages, it may establish a legal minimum for that occupation. Such a wage may be made to apply to the whole or a part of the State. By special license physically defective women may secure employment at special rates, but not more than one-tenth of the workers in any establishment may be of this class. Discrimination against employes testifying in public hearing is prohibited. By legal suit any employe may recover the difference between the legal minimum wage and wages actually received. An advisory board is authorized in every occupation; they will be composed of three to ten persons representing employers, employes, and the public. At least one-fifth of the members of such boards must be women, and at least one representative of the public must be a woman.

CONSTITUTIONALITY. The first test of the constitutionality of a minimum-wage law took place in Oregon. The last legislature created the industrial welfare commission with liberal powers. The commission issued an order in September prescribing conditions of employment of women, whereby hours were limited to 9 per day and 54 per week, and the minimum wage of experienced adult workers was put at $8.64 per week. A box manufacturer attacked the wage provision of the act on the grounds that it deprived him of property without due process of law; that it deprived him of the right of judicial review of the reasonableness of the order; and that it delegated legislative powers to a commission. The Circuit Court of Multnomah County declared laws fixing the maximum hours for women and those fixing, or providing authority for fixing, minimum wages to be complementary. The former being within the police powers, the latter must be also. But that section of the law abolishing the right of judicial review the court held invalid. The case was taken to the Supreme Court.

MINING. See section so entitled under various countries.

MINING INDUSTRY. See MINERAL PRODUCTION OF THE UNITED STATES.

MINNESOTA. POPULATION. The population of the State in 1910 was 2,075,708. According to the estimates of the Bureau of the

Census, made in 1913, the population in that year was 2,181,077.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu:	Value
Corn	1913	2,400,000	96,000,000	$50,880,000
	1912	2,266,000	78,177,000	28,925,000
Wheat	1913	4,200,000	68,040,000	51,711,000
	1912	4,325,000	67,038,000	48,046,000
Oats	1913	2,980,000	112,644,000	36,046,000
	1912	2,948,000	122,932,000	31,962,000
Rye	1913	300,000	5,700,000	2,736,000
	1912	262,000	6,026,000	3,013,000
Potatoes.....	1913	275,000	30,250,000	15,730,000
	1912	245,000	33,075,000	9,261,000
Hay	1913	1,600,000	*a*2,490,000	16,434,000
	1912	1,661,000	2,541,000	16,262,000

a Tons.

Mineral Production. The total value of the mineral products of the State in 1912 was $66,672,729, compared with $53,395,381 in 1911.

Minnesota is the most important State in the production of iron ore, and the Minnesota iron ranges produce considerably more iron ore than is produced in all the rest of the States together. There were produced in 1912 34,431,768 long tons, and 24,645,105 long tons in 1911.

The value of clay products exclusive of pottery in 1912 was $1,641,040, a decrease of $82,438 over 1911. The principal clay product was common brick.

Transportation. The total mileage of all railways within the State of Minnesota in 1913 was 9058.49. The total mileage of all the railroads which are within or pass through the State was 64,277.11 miles.

Finance. The total receipts from all sources for the fiscal year ending July 31, 1913, amounted to $17,809,401. The disbursements of the same period were $18,959,752. At the beginning af the fiscal year there was a balance in the treasury of $2,992,728, and at the end of the fiscal year a balance of $1,842,367. The chief sources of revenue are railroad taxes, general taxes, the twine plant, the State prison, and permanent trust funds. The chief expenditures are for school apportionment, general school aid, the twine plant, and State institutions. The State has no bonded debt.

Education. The total enrollment in the public schools in 1913 was 448,891. The average daily attendance (estimated) was 326,000. There were 6098 teachers. The average salary of male teachers in high and graded schools was $110 per month, and for women $59 per month. In semi-graded and rural schools the average salary for men was $55 monthly, and for women $46. The legislature of 1913 authorized the appointment of an education commission of seven members to revise and codify school laws, and to make a complete study of the education situation in the State. This commission is to render a report to the legislature in 1914, and recommend such changes in the administration, supervision, and maintenance of the schools, as seem necessary for efficiency and progressive school work.

Charities and Corrections. The institutions under the control of the State with their populations on July 31, 1913, are as follows: The Anoka Asylum, 681; the Hastings Asylum, 718; Fergis Falls Hospital, 1500; Rochester Hospital, 1187; St. Peter Hospital, 1126. These are all asylums for the insane, and the total number of inmates on the date mentioned above was 5212. In the Asylum for the Blind at Faribault, there are 86 inmates; in the Asylum for the Deaf at Faribault, 257; in the Home for the Feeble Minded and Epileptics, 1327; in the State School at Owatonna, 263; in the Training School for Boys at Red Wing, 153; in the Training School for Girls at Sauk Centre, 157; in the State Reformatory at St. Cloud, 451; in the Penitentiary at Stillwater, 1069; in the State Tuberculosis Sanitarium at Walker, 108; in the Inebriate Hospital at Willmar, 24; and in the Home for Crippled Children, 50. The total number of inmates in all institutions of the State was 9212. During 1913, four additional cottages were opened at the Hastings and Anoka asylums, for the chronic insane, giving an increased capacity for 250 patients. A successful department in scientific research is in operation at the Institution for Feeble Minded and Epileptics at Faribault, and valuable contributions to the literature of degeneracy and feeble-mindedness have been made. A new State prison at Stillwater was practically completed in 1913, and about half the convicts were transferred from the old prison. The twine industry is now carried on at the new prison. The product of this industry in 1913 was 18,000,000 pounds, and the profit for the year, $372,364. The manufacture of farm machinery in the prison has been successful. Up to August, 1913, there had been manufactured and sold 7000 machines of different kinds, and the profit of the State was nearly $50,000. The State hospital for the care of inebriates and persons addicted to the drug habit was in successful operation in 1913. Since its opening in December, 1912, 123 patients had been committed, of whom 19 have been discharged and 37 released on parole.

Politics and Government. There was no election for State officers during the year, as the term of Governor Eberhart and the other State officials does not expire until January 1, 1916. The next State election will be held on November 3, 1914. On January 21 the legislature reelected Knute Nelson United States senator. On June 2 the United States Supreme Court, in deciding the Minnesota rate case, unanimously upheld the rights of the State, under existing laws, to regulate railroad rates within its borders. On July 21 the courts restored a two-cent passenger rate and commodities law. (For a discussion of these matters, see article Railways.) The legislature of 1913 passed measures reapportioning the congressional and legislative districts of the State.

Legislation. The legislature met in 1913 and enacted an unusual number of important measures. Among them were the following: A law was passed providing that five-sixths of a jury may return a verdict in civil cases after twelve hours' deliberation. A measure was passed providing for the abatement of disorderly houses. Among the laws relating to conduct of business were those providing for uniform negotiable instruments, uniform warehouse receipts, and a blue-sky law relating to insurance companies only. Measures were enacted providing for county tuberculosis sanitoria. The State labor department was reorganized to include a bureau of women and children, with a woman superintendent. A workmen's compensation act was passed, and a minimum wage commission to regulate the wages of women and minors was passed. Another measure limited the maximum for employment of women in certain occupations to 10 hours per day and 58 hours per week, and in other occupations to 9 hours a day and 54 hours a week. A measure was enacted providing for presidential preference primaries, and the non-partisan primary was extended to members of the legislature. The powers of the juvenile courts were extended. A loan-shark law limiting the rate of interest to 1 per cent. a month on loans of $200 or less was passed. A distance tariff law was enacted, and an act providing for good roads. Measures were passed providing for mothers' pensions in the State. Provision was made for a constitutional amendment to be submitted to the people providing for the increase of Supreme Court justices from five to seven, and providing further that no statute shall be declared unconstitutional unless five members concur. Provision was also made for another constitutional amendment providing for the initiative and referendum, and the recall of public officials. See also Liquor Regulation.

State Government. Governor, Adolph O. Eberhart; Lieutenant-Governor, J. A. Burnquist; Secretary of State, Julius A. Schmahl; Auditor, S. G. Iverson; Treasurer, Walter J. Smith; Attorney-General, L. A. Smith; Adjutant-General, Fred B. Wood; Superintendent of Education, C. G. Schultz; Commissioner of Insurance, J. A. Preus; Commissioner of Agriculture, J. F. Maxfield—all Republicans.

Judiciary. Supreme Court: Chief Justice, Calvin L. Brown; Associate Justices, Andrew Holt, G. L. Brunn, P. E. Brown, Oscar Hallam —all non-partisan; Clerk, L. A. Caswell, Republican.

State Legislature, 1913. Republicans: Senate, 42; House, 90; joint ballot, 132. Democrats: Senate, 20; House 26; joint ballot, 46. Republican majority: Senate 22; House, 64; joint ballot, 86.

The names of senators and representatives to Congress will be found in the article United States, section *Congress*.

MINNESOTA, University of. A State institution for higher learning, founded at Minneapolis in 1869. The enrollment in all departments in 1912-13 was 4008. The faculty numbered 450. During 1913 a medical school was reorganized and a number of strong men were added to the general university staff. There were no noteworthy benefactions received during the year. The productive funds in 1912-13 amounted to $1,506,136, the total income to about $2,355,362, of which $1,643,752 was for the support of the university and $711,610 for the increase of plant. The library contains about 175,000 volumes. The president is George E. Vincent, LL. D.

MISSISSIPPI. Population. The population of the State in 1910 was 1,797,114. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 1,876,987.

Agriculture. The area, production, and value of the principal crops in 1912-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	3,150,000	63,000,000	$48,510,000
	1912	3,106,000	56,840,000	40,356,000
Wheat	1913	1,000	14,000	13,000
	1912	8,000	96,000	93,000
Oats	1913	140,000	2,800,000	1,764,000
	1912	113,000	1,966,000	1,180,000
Rice	1913	1,500,000	42,000	29,000
	1912	2,200,000	77,000	69,000
Potatoes	1913	12,000	960,000	960,000
	1912	10,000	890,000	801,000
Hay	1913	220,000	a 293,000	3,956,000
	1912	201,000	297,000	3,712,000
Cotton	1913	2,963,000	b1,195,000	72,048,000
	1912	2,889,000	1,046,000	61,637,000

a Tons. b Bales.

Mineral Production. The utilization of some of its clay resources and the digging of sand and gravel, with the sale of some commercial mineral waters, constitutes the State's only title to consideration as a mining State. A small quantity of iron ore is produced, and some sand-lime brick is made, but both of these are unimportant. The total value of the mineral output in 1912 was $1,242,528, compared with $1.052,848 in 1911.

Finance. The total receipts from all sources for the fiscal year 1913 amounted to $4,501,447, and the disbursements to $4,426,591. There was a balance at the beginning of the fiscal year of $250,999, and at the end of $325,855. The chief sources of revenue are State taxes, and the chief expenditures are for education and State institutions. The bonded debt of the State at the end of the fiscal year 1913 amounted to $3,923,752.

Politics and Government. The legislature did not meet in 1913, as the sessions are biennial, and the last was held in 1912. There was no election for State officers during the year, as the terms of Governor Brewer and the other State officials do not expire until January 18, 1916. The next State election will be held on November 3, 1914. The State suffered severely from floods in the spring and early summer months of the year. (See Floods.)

State Government. Governor, Earl Brewer; Lieutenant-Governor, Theo. G. Bilbo; Secretary of State, J. W. Power; Treasurer, P. S. Stovall; Auditor, D. L. Thompson; Superintendent of Education, J. N. Powers; Attorney-General, Ross A. Collins; Adjutant-General, Arthur Fridge; Land Commissioner, J. H. Brown; Commissioner of Agriculture, H. E. Blakeslee; Commissioner of Insurance, T. M. Henry—all Democrats.

Judiciary. Supreme Court: Chief Justice, S. Smith; Associate Justices, S. C. Cook and R. F. Reed; Clerk, George C. Myers—all Democrats.

State Legislature. The State legislature is wholly Democratic.

The names of senators and representatives to Congress will be found in the article United States, section *Congress*.

MISSOURI. Population. The population of the State in 1910 was 3,293,325. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 3,353,983.

Agriculture. The area, production, and value of the principal crops in 1912-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	7,375,000	129,060,000	$95,506,000
	1912	7,622,000	243,904,000	112,196,000

		Acreage	Prod. Bu.	Value
Wheat	1913	2,315,000	39,586,000	$33,252,000
	1912	1,900,000	23,750,000	21,375,000
Oats	1913	1,250,000	26,500,000	11,925,000
	1912	1,125,000	37,125,000	12,994,000
Rye	1913	16,000	240,000	180,000
	1912	15,000	222,000	178,000
Potatoes.....	1913	85,000	3,280,000	3,004,000
	1912	95,000	7,980,000	5,506,000
Hay	1913	3,000,000	[a]1,800,000	26,100,000
	1912	3,187,000	4,143,000	40,601,000
Tobacco.....	1913	5,100	[b]3,315,000	421,000
	1912	6,000	6,000,000	720,000

[a] Tons. [b] Pounds.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $58,332,550, compared with $51,932,906 in 1911. The State produces a small amount of iron ore. This, in 1912, amounted to 43,480 long tons, compared with 65,325 long tons in 1911. Some copper is produced in the State. In 1912 this amounted to 440,725 pounds, compared with 640,411 pounds in 1911. The output is mainly recovered as a by-product in the dressing of lead ores.

The total coal production in 1912 was 4,339,856 short tons, valued at $7,633,864. This was the highest production in the coal-mining history of the State, and surpassed the production of 1911 by 503,749 tons. There were employed 9704 men in the coal mines of the State during 1912, compared with 10,259 in 1911. The average time per man in 1912 was 206 days, compared with 182 days in 1911. In 1912 there were 20 men killed in the coal mines of the State, compared with 8 in 1911. Of the 20 fatalities, 16 occurred underground, 1 in the shaft and 3 on the surface. Missouri is one of the most important clay-working States of the country, and is the leading Southern State in this respect. The total value of the clay products in 1912 was $6,412,861, an increase of $138,508 over 1911. Fire brick is the product of chief value.

EDUCATION. The total school population of the State in 1913 was 954,699. The total enrollment was 690,484, and the average daily attendance, 494,309. The male teachers numbered 4706, and the female teachers 14,148. The average annual salary of male teachers was $497.60, and of female teachers, $485.44.

FINANCE. The reports of the treasury are for the biennial period 1911-12. There was a balance in the State treasury on January 1, 1911, of $1,829,491. The total receipts from all sources during the two-year period was $9,998,292, and the disbursements were $6,518,122, leaving the balance in the treasury on January 1, 1913, of $537,829. The State debt on January 1, 1913, amounted to $4,398,839. The chief receipts are from taxation, and the chief expenditures are for State institutions, State officers, and education.

TRANSPORTATION. The total miles of steam railroad in the State in 1913 was 8147. There were 847 miles of electric railroad. There was practically no construction of new mileage during the year.

CHARITIES AND CORRECTIONS. The institutions under control of the State, with their populations in 1913, are as follows: Hospital No. 1, Fulton, 1038; Hospital No. 2, St. Joseph, 1509; Hospital No. 3, Nevada, 1249; Hospital No. 4, Farmington, 586; Industrial Home for Girls, Chillicothe, 226; Training School for Boys, Boonville, 518; Colony for Feeble Minded and Epileptic, Marshall, 471; Missouri School for the Deaf, Fulton, 280; Missouri School for the Blind, St. Louis, 108; Federal Soldiers' Home, St. James, 295; Confederate Soldiers' Home, Higginsville, 306; State Sanitorium, Mount Vernon, 78; State Penitentiary, Jefferson City, 2484. These institutions are under the administration of the State board of charities and corrections, which has wide powers. This board meets quarterly for the purpose of discussing the work and for the discussion of the social welfare question.

POLITICS AND GOVERNMENT. There was no election for State officers during the year, as the terms of Governor Major and the other State officials do not expire until January, 1917. The next State election will be held on November 7, 1916. Governor Major was inaugurated on January 14. Both houses of the legislature adopted the amendment providing for the direct election of senators. As a result of stringent legislation passed to regulate them, many fire insurance companies withdrew from the State in 1913. (See FIRE INSURANCE.) The election laws of the State were greatly changed by the legislature of 1913. The most important of these is a so-called non-fusion provision and the "blanket ballot" instead of the "ribbon blanket." The date for holding State conventions was changed from the second Tuesday in September to the fourth Tuesday in August, and the conventions may be at any point in the State selected by the State committee of each party. On July 8 Governor Major issued a proclamation asking for volunteers to give aid in improving the highways. As a result of this call, many of the citizens of this State, including the governor himself, did manual labor on the roads for several days. On August 23 the governor released 22 convicts to work on the roads, and several days later released more convicts for the same purpose. Suits brought by the State against certain railroads for overcharges were decided in favor of the State on December 20. (See RAILROADS.) On December 26 the San Francisco Railroad was sued for recovery of excess rates.

LEGISLATION. The legislature met in 1913 and passed many important measures. Among them may be noted the following: A blue-sky law patterned after the Kansas statute was enacted. The mothers' pension law, already in force, was extended. A measure was passed prohibiting any railroad, street railway, terminal, transfer, or electric railway corporation from operating any intra-State business unless incorporated under the laws of Missouri. A white slave act patterned after the Mann act was passed. The legislature enacted a number of laws relating to safety and the hours of labor of employes in various occupations. A public service commission with broad powers over all public utility corporations and persons was created. Provision was made for a non-partisan convention for the nomination of Circuit Court judges, delegates to which are selected at general primary elections. The primary election system was extended to include the nomination of all elective city officers in cities having more than 400,000 inhabitants. A "county unit law," which is regarded as practically assuring prohibition of the State outside of the large cities, was passed. A stringent loan-shark law was enacted. A drastic statute on the subject of pools, trusts, conspiracies, and discriminations was passed. One provision of this is that in any proceeding against an insurance company, it will be *prima facie* evidence that the company is a member of a conspiracy if it be shown that it or any agent in writing insurance has used any rate or made use of any schedule of rates prepared or furnished by any person or concern acting in behalf of any insurance company or association in the making and publishing of insurance rates. This act is said to have caused more than 150 life insurance companies to suspend writing insurance in Kansas City. A provision was made for constitutional amendments allowing pensions to the deserving blind, to be submitted to the people.

State Government. Governor, Elliott W. Major; Lieutenant-Governor, W. R. Painter; Secretary of State, Cornelius Roach; Auditor, John P. Gordon; Treasurer, E. P. Deal; Attorney-General, John T. Barker; Superintendent of Education, Wm. P. Evans—all Democrats except Evans.

Judiciary. Supreme Court: Chief Justice, Henry Lamm, Republican; Associate Justices, Walter W. Graves, Democrat; A. M. Woodson, Democrat; H. W. Bond, Democrat; C. B. Faris, Democrat; R. F. Walker, Democrat; John C. Brown, Republican; Clerk, J. D. Allen, Democrat.

State Legislature, 1913. Democrats: Senate, 25; House, 113; joint ballot, 138. Republicans: Senate, 9; House, 28; joint ballot, 37. Progressives: House, 1; joint ballot, 1. Democratic majority: Senate, 16; House, 84; joint ballot, 100.

The names of senators and representatives to Congress will be found in the article United States, section *Congress*.

MISSOURI, University of. A State university of higher education at Columbia, Mo., founded in 1839. The students enrolled in all departments in 1913-14 were 3349. The faculty numbered 245. There were no noteworthy changes in the faculty during the year, and no notable benefactions were received. The productive funds amount to $1,280,000, and the income to approximately $1,000,000. The library contains 155,000 volumes. The president is Albert R. Hill, LL.D.

MOALE, Edward. Brigadier-general of the United States army, died September 27, 1913. He was born in Maryland in 1840. In 1861 he was appointed first lieutenant of the 19th Infantry and was promoted to be captain in 1864. In the following year he became lieutenant-colonel and assistant adjutant general of volunteers. He took part in the battle of Spottsylvania and in the campaign before Richmond, receiving brevets of major, lieutenant-colonel, and colonel for gallantry in the field. After serving in various regiments, following the Civil War he was appointed major of the 1st Infantry in 1887, lieutenant of the 3d Infantry 1891, and colonel of the 15th infantry in 1897. In 1902 he was retired at his own request after forty years' service. He was advanced to the rank of brigadier-general, retired, by the act of April 23, 1904.

MOMBERT, Jacob Isidor. An American Protestant Episcopal clergyman and author, died October 7, 1913. He was born at Cassel, Germany, in 1829, and received an academic education in Germany and England. After studying theology in the United States, he was ordained priest in the Protestant Episcopal Church in 1857. From 1857-1859 he was assistant to Trinity Church in Quebec, Canada; from 1859-1870 rector of St. James Church at Lancaster, Pa.; from 1870-1876 rector at St. John's parish, Dresden, Germany; and from 1877-1882 of Christ Church at Jersey City, N. J. In the last named year he gave up pastoral work and devoted himself entirely to literature. He was the author of *Authentic History of Lancaster County, Pa.*; *Faith Victorious* (1882); *Great Lives* (1886); *Charles the Great* (1888); *Handbook of English Versions of the Bible* (1890, 1907); *Short History of the Crusades* (1894); and *Raphael's Sistine Madonna* (1895). He received the degree of D.D. from the University of Pennsylvania in 1866.

MONACO. A constitutional European monarchy, occupying 1.5 sq. kilometers; population, 19,121. The city of Monaco has 2410 inhabitants, La Condamine 6218, Monte Carlo 3794. No creed but Roman Catholicism is tolerated. There is no cultivation. The revenue is chiefly derived from the gaming concession at Monte Carlo. The constitution dates from January 5, 1911. The reigning prince (house of Goyon-de-Matignon-Grimaldi) is Albert, born 1848, came to the throne 1889. He married in 1869 Lady Mary Douglas-Hamilton (mother of the heir-apparent, Louis, born 1870). This marriage being dissolved in 1880 he married Alice, dowager duchess of Richlieu (née Heine); this union was also dissolved (1902).

MONEY TRUST. See Trusts.

MONGOLIA. See China.

MONOPLANES. See Aeronautics.

MONROE DOCTRINE, New. See Mexico, *History*.

MONTANA. Population. The population of the State in 1910 was 376,053. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 419,174.

Agriculture. The area, production, and value of the principal crops in 1912-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	28,000	882,000	$ 679,000
	1912	24,000	612,000	428,000
Wheat	1913	870,000	20,673,000	13,644,000
	1912	803,000	19,346,000	12,381,000
Oats	1913	500,000	21,750,000	6,960,000
	1912	476,000	22,848,000	7,997,000
Rye	1913	10,000	210,000	116,000
	1912	10,000	235,000	141,000
Potatoes	1913	36,000	5,040,000	3,377,000
	1912	37,000	6,105,000	2,442,000
Hay	1913	660,000	[a]1,188,000	11,405,000
	1912	640,000	1,216,000	10,093,000

[a] Tons.

Mineral Production. The total value of the gold, silver, copper, lead, and zinc produced by the deep and placer mines in the State in 1913 was estimated by the United States Geological Survey as somewhat over $59,000,000, a decrease of about 8 per cent. from the production of 1912. There was a large decrease in the copper yield, and consequently in the gold. The gold decreased nearly 12 per cent., the figures being $3,194,000 in 1913 as against $3,625,225 in 1912. An increase of nearly 4 per cent. was made in the silver production of the State, the figures being 13,203,000 ounces in 1913, against 12,731,638 in 1912. The copper output decreased about 9 per cent., from 309,738,873 pounds in 1912 to 280,658,000 pounds in 1913. The average price of copper decreased from 16.5 cents in 1912 to about 15.4 in 1913. The lead output increased from 7,446,749 pounds in 1912 to 8,547,000 pounds in 1913, or nearly 15 per cent. A record production of recoverable spelter was made from the zinc concentrates shipped from the mine in the State in 1913. From 26,918,881 pounds spelter in 1912, the output increased to 85,449,297 pounds in 1913, or 217 per cent. This was largely due to results at the Butte and Superior mine. The total value of the mineral products of the State in 1912 was $71,620,873, compared with $53,498,194 in 1911.

The State ranks second only to Arizona in the yearly production of copper. There were produced in 1912, 308,770,826 pounds of blister copper, as compared with 271,814,491 pounds in 1911. At the close of 1912 the State had yielded 5,907,024,710, or 33.5 per cent., of the total output of the United States since 1885. In the total production, the State ranks first. The Butte district furnishes nearly the entire output. At the close of 1912 Butte produced about 5,894,200,000 pounds of copper or 33.4 per cent. of the total output of the country since 1845. In the total production of the output for 1912, it ranks first among the copper producing districts of the United States.

The production of gold in Montana in 1912 was $3,625,235, compared with $3,710,571 in 1911. The gold output of the State from deep mines has been steadily falling off for several years, but the placer output has increased. The placer production of 1912 was $806,419, of which $710,389 was from dredging operations, chiefly in the Alder Gulch district of Madison County. This county led in the gold output of the State in 1912, and was followed by Silver Bow County, the gold production mainly from the Butte copper ores.

The silver production of the State in 1912 was 12,731,638 fine ounces. compared with 11,985,196 ounces in 1911. Almost the entire amount of this was obtained from copper ores of the Butte camp, which in 1912 produced 10,655,055 ounces of silver.

The total coal production in 1912 was 3,480,495 short tons, valued at $5,558,159. This was an increase over the production of 1911 of 72,137 tons. The coal production of the State in 1913, as estimated by the United States Geological Survey was about 8 per cent. in excess of the production of 1912. The coal mines were comparatively free from labor troubles during 1912. The number of men employed in 1912 was 3440, compared with 3866 in 1911. The total number of men killed in the coal mines of the State in 1912 was 7, compared with 13 in 1911.

FINANCE. The report of the State treasurer showed a balance on hand at the beginning of the fiscal year November 30, 1912, of $1,401,641. The receipts during the year were $4,446,953, and the disbursements $4,808,845, leaving a balance on hand at the end of the fiscal year of $1,039,749. The chief source of revenue is taxation, and the chief expenditures are for the State educational institutions. The bonded debt of the State includes $125,000 of Montana 4 per cent. bonds and $533,000 of State Insane Asylum bonds. The capitol building bonds of $1,000,000, which are outstanding, are secured by land grants, and are not a direct obligation of the State of Montana.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include a reform school at Miles City; Deaf and Blind School at Boulder; the State Asylum for the Insane; the State Prison; and the State Orphans' Home. There were in the State Asylum for the Insane at the end of 1913, 905 inmates. On December 31, 1913, there were in the State Prison 618 prisoners. The State Orphans' Home had 160 inmates.

POLITICS AND GOVERNMENT. There was no election for State officers during the year as the term of Governor Stewart does not expire until January, 1917. The next State election will be held on November 7, 1916. The legislature on January 14 elected Thomas J. Walsh United States senator to succeed Joseph M. Dixon.

LEGISLATION. The legislature met in 1913 and passed several important measures. A 9-hour day for women in certain employments was provided for. A department of labor was created. The granting of injunctions in suits growing out of labor disputes was restricted. Measures were passed creating a State tax commission, and anti-trust discrimination laws were enacted. A loan-shark law was passed. This provides a maximum rate of interest of 12 per cent. a year. The State railroad commission was given jurisdiction and control of all public service corporations. A blue-sky law, modeled after the Kansas statute, was enacted. Measures were passed providing for suspended sentences, parole, commissioners, and assistance to parole convicts in obtaining employment. Measures were passed putting into effect the provision for party nominations by direct vote initiated and passed at the election in November, 1912. At this election a presidential preference primary law, and laws providing for the election of delegates to presidential conventions and the nomination of presidential electors by direct vote were also passed, and the legislature passed measures putting these laws into effect. In like manner the measures putting into effect the stringent corrupt practices act initiated and passed in November, 1912, were enacted. Provision was made for the submission to the people of a woman suffrage amendment.

STATE GOVERNMENT. Governor, Samuel V. Stewart; Lieutenant-Governor, W. D. McDowell; Secretary of State, A. M. Alderson; Attorney-General, D. M. Kelly; Treasurer, W. C. Rae; Auditor, W. Keating; Superintendent Public Instruction, H. A. Davee—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Theo. Brantley, Republican; Justices, Sydney Sanner, Democrat; Wm. L. Holloway, Republican; Clerk, John T. Athey, Republican.

STATE LEGISLATURE, 1913. Democrats: Senate, 17; House, 48; joint ballot, 65. Republicans: Senate, 13; House, 20; joint ballot, 33. Progressives: Joint ballot, 18. Socialists: Joint ballot, 1. Democratic majority: Joint ballot, 13.

The names of senators and representatives to Congress will be found in the article UNITED STATES, section *Congress*.

MONTANA, UNIVERSITY OF. A State university for higher education, founded at Missoula, Mont., in 1893. The total enrollment in the autumn of 1913 was 297. The faculty numbered about 45. N. J. Lennes was appointed head of the department of mathematics, and A. N. Whitlock was appointed dean of the Law School. New departments of commerce, accounting and household arts were added during the year, and a school of music was also added. There are about 10,000 pamphlets and 20,000 volumes in the library. The president is Edwin B. Craighead, A.M.

MONTENEGRO. One of the Balkan states; a constitutional (1905) hereditary European monarchy, lying between the Herzegovina and Albania and having an outlet on the Adriatic Sea. The area, previous to the wars in the Balkans, was 9080 sq. kilometers (3506 sq. miles). By the conclusion of the treaty of Bucharest, Montenegro gained the western portion of the sanjak of Novibazar, Ipek, and Jakova—territories estimated to cover 5100 sq. kilometers. The original population numbered about 285,000 (31 to the sq. kilometer); the population of the new territories is estimated at 150,000. The majority of Montenegrins belong to the Greek Orthodox Church. Cettinjé, the capital, has 5300 inhabitants (exclusive of the garrison), Podgoritsa 10,053, Dulcigno 5081, Nikshich 4972, Antivari 2371, Niégosh 1890, Riéka 1557, Danilovgrad 1125; in the new territories, Diahovitza, 14,050.

Montenegro is well adapted for grazing; considerable herds roam the mountain pastures. Some crops are raised, corn, potatoes, and tobacco being among the most important. Much of the country is heavily forested. The chief products and exports are hides (380,000 kronen in 1911, 422,537 in 1909), wool (259,000 and 364,246), horses (275,000 and 315,387), cattle (312,000 and 235,478), olive oil (333,000 and 230,967), sheep (108,000 and 63,113); with miscellaneous amounting to 725,000 kronen. The exports for 1911 were valued at 2,392,000 kronen; in 1909, at 2,435,550 kronen. The imports for 1911 were valued at 8,167,000 kr. (6,181,369 kr. in 1909), derived as follows: Austria-Hungary 4,387,000 kr., Turkey 1,330,000, Italy 1,257,000, U. K. 359,000, France 179,000, Germany 515,000, other 140,000. In 1911 merchant marine included 22 sail, of 5030 tons net. A railway (18 kilometers) runs from Antivari to Lake Scutari. Telegraph lines 850 kms.; stations, 24; post offices, 21. The budget for 1912 estimates the receipts at 3,609,000 kr. (customs 1,106,000, monopolies 945,000, land tax 730,000, posts and telegraphs 288,600); the expenditure at 4,187,126 kr. (interior 935,000, service of the debt 727,528, finance 626,160, worship and instruction 616,239, justice 316,840, civil list 316,000, war 260,000, pensions 158,000, foreign affairs 168,459, various 62,900). The public debt amounts to 9,500,000 kr.

ARMY. The army of Montenegro is organized on a militia basis with universal service. The organization consists of four divisions of infantry, with a total of 57 battalions with four nucleus battalions with permanent headquarters at Cettinjé, Podgoritza, Niksitch, and Kolashine. The war strength was estimated at from 30,000 to 50,000 men, but there was no cavalry, and the artillery equipment, except for some modern guns recently acquired, was antiquated and unsatisfactory.

Nicholas I. (born October 7, 1841), the reigning monarch, succeeded his uncle, Prince Danilo, who was assassinated August, 1860; he married in the same year Princess Milena, daughter of the voyvode Peter Voucotich. He took the title of king in 1910. Heir-apparent, Prince Danilo, born June 29, 1871, and married (1899) to the Duchess Jutta of Mechlenburg-Strelitz. The ministry as constituted May 8, 1913, was composed as follows: Brigadier-General Janko-Voucotich, premier and minister of war; R. Popovich, finance and public works; L. Goinch, interior, agriculture, posts, and telegraphs; L. A. Bakich, justice; M. Mijouchkovich, worship and instruction; P. Plamentaz, foreign affairs.

For the year's history, see TURKEY AND THE BALKAN PEOPLES.

MONTESSORI METHOD. See EDUCATION IN THE UNITED STATES, *Montessori Method*.

MONTSERRAT. A presidency of the Leeward Islands (q.v.). Plymouth, the capital, has 1534 inhabitants. The island is of volcanic origin and mountainous, with an annual rainfall of 46.43 inches and a mean (dry bulb) temperature of 79.45°. The death rate is the lowest in the Antilles—15.33 per 1000. The sugar industry has been almost abandoned in favor of lime juice and cotton. Cotton was exported in 1911 to the value of £37,724, and lime products £7054. External trade (calendar years) and finance (fiscal years) statistics for the presidency follow:

	1908-9	1909-10	1910-11	1911-12
Imports	£40,132	£31,343	£38,106	£44,795
Exports	45,304	31,569	34,393	55,930
Revenue	10,950	10,612	12,262	12,945
Expenditure	8,796	7,808	11,366	10,030
Shipping *	384,472	362,158	360,226	359,554

* Tonnage entered and cleared.

Customs revenue (1911-12), £9296. Public debt, £11,100. The commissioner in 1913 was Lieut-Col. Wilfred B. Davidson-Houston (appointed 1906). See LEEWARD ISLANDS.

MOORE, JOHN W. An American rear-admiral, retired, U. S. N., died March 31, 1913. He was born in Plattsburgh, N. Y., in 1832, and was educated at the Plattsburgh Academy and at Williston Seminary. He joined the United States navy as third assistant engineer in 1853. From 1861-63 he took part in the blockading of the lower Mississippi River, and among the engagements in which he participated were the capture of the Confederate defenses at Pensacola; passage and capture of Forts Jackson and St. Philip; the capture of New Orleans; passage of the Vicksburg batteries; capture of the batteries at Port Hudson; and the capture of Port Hudson. He was the originator of the chain cable protection on sides of wooden ships, also of war paint for making ships less visible in action and at night, and of the fighting-tops now universally used in war vessels. From 1863-67 he was superintendent of ironclads at New York and Boston. In 1867-68 he was fleet engineer on the staff of Admiral Farragut, commanding the European squadron. He was fleet engineer of the Asiatic station from 1872-75, and of the navy yard at Washington from 1876-79; and inspector of machinery at the navy yard, New York, during the Spanish-American War. In 1906, having risen through the various grades, he was advanced to the rank of rear-admiral, retired.

MORAVIAN CHURCH. See Moravians.

MORAVIANS, also called United Brethren (*Unitas Fratrium*) and the Moravian Church. The denomination maintains missions in Africa, Alaska, Asia, Australia, Labrador, Nicaragua, South America, West Indies, and Bohemia. The educational institutions which have high reputation for efficiency include the Moravian College and Theological Seminary, the Moravian Parochial School for Boys and Girls, and the Moravian Seminary for Girls at Bethlehem, Pa., Linden Hall Seminary for Girls at Lititz, Nazareth Hall for Boys at Nazareth, Pa., and an academy for girls at Salem, N. C. The denomination had in 1913 19,463 communicants, 122 churches, and 142 ministers. There is a smaller body called the United Bohemian and Moravian Church, which in 1913 had 1000 communicants, 31 churches, and 4 ministers. The Moravians are strongest in Pennsylvania. See also Religious Denominations and Movements.

MORET Y PRENDERGAST, Sigismond. A Spanish public official, died January 28, 1913. He was born in Cadiz in 1838 of a family of good position, and he received as excellent an education as could be obtained at that time in Spain. Almost immediately after taking his university degree he was appointed professor of political economy and financial institutions. His chief interests, however, were in journalism and politics, and he soon rose to distinction in both of these branches of effort. The most important part of his first parliamentary career began after the restoration of Alfonso XII., although he had previously held office as minister of the interior and of finance in 1870-71 and had been for a short interval ambassador in London. On the abdication of Amadeo in 1873 Moret was one of those who voted for a republic. In 1879 when he reëntered the Cortes he assisted in the organization of the Democratic dynastic party. After the death of Alfonso XII. and during the regency of Maria Cristina he was the constant colleague of Señor Sagasta, as minister for foreign affairs in 1885, as chief of the home office until 1888, and again as minister for foreign affairs in 1893 and 1894. He also served as minister of public works and minister for the colonies. He occupied the latter position in 1898, at the outbreak of the Spanish-American War. He foresaw the disasters which ensued but could do nothing to prevent them. After the death of Sagasta and the arrival of Alfonso XIII. at majority, he became the nominal leader of the Liberal party and was prime minister in 1905 and 1906. His inability to control his party drove him to resign in the latter year. In October, 1909, the Conservative government of Señor Maura was compelled to resign, although it possessed a strong majority in the cabinet. A new government was rapidly constituted under Moret, but its weakness led to its downfall in February, 1910. Moret had a reputation among his countrymen for his restless activities and encyclopædic knowledge. He was, however, not a successful party leader, due largely to his tendency to speak hastily and utter truths which were damaging.

MORGAN, John Pierpont. An American financier, philanthropist, and art collector, died April 1, 1913. He was born in Hartford, Conn., April 17, 1837. His father, Junius Spencer Morgan, was a successful banker. His mother was a daughter of the Reverend John Pierpont. John Pierpont Morgan received his early education in the East High School in Boston. Before he had finished the course, however, on the establishment of a branch of his father's banking house in London, the family moved abroad, and his education was completed at the University of Goettingen, from which he graduated in 1857. The two years following were spent in the London banking house of his father. He then settled in New York, where he entered the employ of Duncan, Sherman, and Company. In 1861 he helped to organize, and became a member of the firm of Dabney, Morgan, and Company. With this firm he remained until 1869, and there, without attracting the attention of financiers by any display of brilliancy, he laid the foundation of his successful career. He first appeared in the public eye in 1869, as the victorious opponent of J. Gould and James Fisk, then at the zenith of their power, in their designs upon the Albany and Susquehanna road, which was then in bad financial condition. Shortly after this, Mr. Morgan was taken into partnership by the Drexels in Philadelphia, and he was placed in charge of the New York house of the reorganized firm under the name of Drexel, Morgan, and Company. This firm name continued until 1895, when it was reorganized as J. P. Morgan and Company, and the Philadelphia business was left to the Drexels alone.

In his early years with the Drexel, Morgan Company, Mr. Morgan gradually extended the foreign exchange department, which was then considered by most New York bankers as a greatly inferior branch of banking. This work laid the foundation for Mr. Morgan's activity in international financing, in which field his first important venture was the successful underwriting of an issue of 300,000 shares of New York Central stock, to be sold in England. The transaction was so successful that it showed a gross profit of $3,000,000 to bankers. It also had the result of establishing Mr. Morgan as a fiscal agent for the Vanderbilt lines, and as private banker for most of the Vanderbilt family up to the time of his death. It gave him also prestige, and attracted foreign capital to great enterprises in the United States.

Through his connection with the Vanderbilt railway interests Mr. Morgan gradually rose to a position of dominance in American railway finance. The period 1880-90 was one of destructive railway competition and great financial instability. In 1885, through the efforts of Mr. Morgan the New York Central secured control of the West Shore, its most formidable competitor, with great resulting gains to the stockholders of both companies. By similar means other railway consolidations were effected, and the support of Mr. Morgan greatly strengthened the tendency toward agreements limiting railway competition throughout the country. Still more notable was his work in effecting reorganization of roads that had become hopelessly involved, financially. Among these reorganizations the more important were the Reading (1886); the Chesapeake and Ohio (1888); the Southern (1894); the Erie (1895); the Northern Pacific (1896). The most dramatic episode in Mr. Morgan's career as railroad financier was his fight, in association with J. J. Hill, with E. H. Harriman for the control of the Northern Pacific. Mr. Hill

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JOHN PIERPONT MORGAN

Died March 31, 1913

controlled the Great Northern, and it was advantageous to him as well as to Mr. Morgan that the two companies should have an understanding. They succeeded in obtaining possession of the Burlington road, which was designed to serve as a feeder for their lines. Mr. Morgan at this time went to Europe, and while there received a cablegram announcing that the Harriman interests had acquired control of the Northern Pacific and Union Pacific systems. Mr. Morgan at once ordered his partners to buy 150,000 shares of Northern Pacific. This resulted in the famous panic of May, 1901. The purchases under Mr. Morgan's orders began on May 6 of that year. The price of Northern Pacific rose from $110 to $1000 per share. The panic resulted in the failure of many large business houses which were "short" on Northern Pacific stock. As a result of these transactions, the Harriman interests had a majority of the preferred stock and a majority of all the stock, common and preferred, together. Nevertheless the Morgan-Hill party had a majority of the common stock and was in control of the road with a right to retire the preferred stock. This stock was retired, but at the same time the factions came to an agreement for a joint control of the roads. The next step in the settlement of this warfare was the organization of the Northern Securities Company, a holding company which took over the Burlington, Great Northern, and Northern Pacific railways. The government took action against this combination as being against the Sherman law, and it was dissolved. This resulted in litigation for the possession of the stocks which was financially decided in favor of the Morgan-Hill party, which thus came into control of the three great roads in the system. While railway finance remained until the end of his life one of Mr. Morgan's chief interests, industrial finance absorbed much of his attention after the opening of the present century. His most important venture in this field was the organization in 1901 of the United States Steel Corporation, the successful launching of which had much to do with the great consolidation movement of the five years following. After the panic of 1907, Mr. Morgan's firm greatly extended its power through securing control of other banks, or at least agreements for harmonious action, thus creating the so-called money trust.

In his work as financial leader Mr. Morgan performed public services of the highest importance. In 1893, when the United States Treasury was seriously embarrassed by the demands upon it for gold, Mr. Morgan formed a syndicate to supply $65,117,500 in purchase of $62,317,500 of 33-year bonds. In 1894 and 1902, through organization of control over foreign exchange, the Morgan firm checked the development of panic, and in 1907 Mr. Morgan assumed the leadership of the American banking world in its struggle to ward off a universal crash.

Mr. Morgan bore the reputation of the leading art collector of his generation. At the time of his death, the value of his collection was estimated at over $50,000,000. Through loans to public museums a great part of the Morgan art collections have been put to the service of the public. Mr. Morgan was also distinguished for his munificence in contributing to public and semi-public institutions. His largest gifts were to the New York Lying-in Hospital, the New York Trade Schools, and the Cathedral of St. John the Divine.

MOROCCO. The largest of the Barbary states; an African sultanate under French protection by virtue of the treaty of March 30, 1912 (ratified without reservation by Germany in 1913), except for the area conceded to Spain, and Tangier, which is to be internationalized. The Spanish concessions cover an area of 21,800 square kilometers carrying a population of about 404,000; Tangier, 600 square kilometers, 60,000 inhabitants. The French protectorate has an area of 416,800 square kilometers and an estimated population of 3,000,000. Jews number about 150,000; Europeans (1910), 19,243. There are three capitals—Fez, with 102,125 inhabitants; Morocco (Marakesh), 87,120, and Mequinez. Mogador, an important port, has 22,000 inhabitants, Casablanca (Spanish) 42,000, Tetuan (Spanish) 43,000, Rabat 60,200, Tangier 46,270. Berbers, Tuaregs, Bedouin, and Mued Arabs are among the chief elements of the population; roving bands wage war among themselves and with their European rulers. Agriculture is undeveloped and the abundant mineral resources remain unexploited. Carpets and slippers are manufactured. The trade was rated for 1912 at 152,497,000 francs imports and 75,047,000 francs exports (Great Britain 50,725,000 francs imports and 15,617,000 francs exports, France 49,953,000 and 15,540,000, Germany 13,209,000 and 17,839,000, Algeria 18,178,000 and 8,993,000, Spain 5,345,000 and 8,795,000, Belgium 4,073,000 and 442,000, Austria-Hungary 3,958,000 and 116,000, etc.). Chief articles of export follow with values in thousands of francs: Barley, 19,332; vegetables, 7113; wheat, 6579; eggs, 6125; flax, 5005; hides and leather, 4764; almonds, 4127; cattle, 2327; wool, 1580; corn, 1201; slippers, 1078; canary seed, 1224; wax, 872.

There are no authentic figures for Moroccan finance. The customs duties at the seven ports amounts to about 12,500,000 francs. The sultan's budget is placed at about seven millions. The sultan is an absolute spiritual and temporal despot. He and his subjects belong to the Malekite sect of the Sunnite Mohammedans. The reigning sultan is Mulai Yussuf, proclaimed at Fez August 17, 1912, in place of his deposed brother, Mulai Abd-el-Hafid, who had succeeded another brother, Mulai Abdul, deposed in 1908. All are sons of Mulai Hassan (1873-1894). French resident commissioner-general in 1913, General H. Lyautey; Spanish high commissioner (at Tetouan), Lieutenant-General J. Marina.

HISTORY

ORGANIZATION OF THE FRENCH PROTECTORATE. By the treaty of March 30, 1912, France was given a protectorate over Morocco with the right to occupy any part of Moroccan territory, to veto any loan or concession, and through diplomatic and consular agents to control the relations of natives with foreigners. Tangier, the Spanish zone in the north (including Melilla, Jebda, Ceuta, El Arish, and Alcazar), and the Spanish enclave at Ifni (the southernmost portion of the Atlantic coast) had been excepted from the protectorate by the Franco-Spanish Treaty of November 27, 1912.

Although Spain and France had agreed in a general way on the extent of the Spanish zones, the boundaries had yet to be delimited, and in 1913 a mixed commission of delimitation began work. The territory occupied by the French was divided into nine "regions," each under a military officer, as follows: Region of Rabat, Colonel Blandlat; Chaouia, General d'Esperey; Mekinez, General Dalbiez; Fez, General Gouraud; Doukhala-Abda (Mazagan), Lieutenant-Colonel Peltier; Marrakesh, Colonel Mangin; Oujda, General Alex Taowirt, General Girardot; Southern Region, Lieutenant-Colonel Ropert.

The civil administration was completed in January, 1913, by the creation of a general secretariat, to have charge of the relations with the Maghzen, public instruction, and questions affecting the natives. French interests were further represented by a director-general of finance, and a director-general of public works, chosen by the French resident-general and appointed by the sultan to assist the shereefian ministry. The resident-general (General Lyautey in 1913) was the highest representative of the French government in Morocco, combining civil and military powers, and owing obedience only to the Foreign Office at Paris, where a special Moroccan department was created. General Lyautey appeared to be on the best of terms with Mulai Yussuf; in August the sultan was decorated with the grand cross of the Legion of Honor; and on November 3 the monarch and the officers exchanged complimentary speeches at Rabat, General Lyautey expressing the hope that the pacification of Morocco might be carried on apace with his majesty's coöperation, and Mulai Yussuf rejoicing in the anticipated work of reform and civilization.

The pacification of the western coastland was interrupted in December, 1912, by the treason of kaïd Anflous, a native chieftain in the vicinity of Mogador. On January 24 General Brulard, in command of a punitive expedition sent out from Mogador, inflicted a decisive defeat on the kaïd and captured the Kasbah of Anflous. In this engagement the French lost 13 killed and 62 wounded. Subsequently the ex-kaïd Guellouli, a fellow-rebel with the kaïd Anflous, was captured, and most of the Ida-ou-Guelloul tribesmen solicited pardon and recognized Mulai Yussuf. In August there was fighting in the region of Taradant (near Agadir), and again in December, when the French commander at Agadir, warned in advance of the hostile intentions of the Kisma tribe, sent out a force to surprise the tribesmen. The insurrectionary propaganda of the pretender El Heiba met with but little success in the southern Atlas region, while in the north the French were making considerable progress. The establishment of a French post at Oued-Zem, south of Rabat, was resented by the Tadla tribesmen, who attacked Oued-Zem on February 22-23. Colonel Mangin led a column against the refractory Tadlas, defeated them, and entered their Kasbah on April 7. On June 9-10 he defeated the rebellious Mohaou-Saïd and captured the Kasbah of the Kribas. This second success cost him 45 men killed and 101 wounded. Meanwhile General Henrys quelled a rebellion in the region south of Mekinez and occupied Azrou, in the neighborhood of Beni M'Tir mountain. General Gouraud, the commandant of Fez region, forced a large part of the Beni-Seddem tribe to make peace.

THE SPANISH ZONE. The Spanish army of occupation encountered determined resistance in northern Morocco. Although General Alfau, who entered Tetuan in February, inflicted a severe defeat on a body of Moors near Ceuta on July 11, they continued to hem in the Spaniards at Tetuan and made it dangerous, if not impossible, to go from Tetuan to Ceuta. No communication at all was possible between Tetuan and El Arish (Laraiche). In August the Spanish forces won several minor victories, and in September the situation around Tetuan was reported much improved. In October General Silvestre captured a Moorish stronghold at Zarkuntz. Fighting also occurred on the Anjera coast, which was bombarded by Spanish ships on June 18, and at Alhucemas, where the crew of a wrecked gunboat were set upon and killed by Moors. The expense and seeming futility of the Spanish operations in Morocco caused extreme dissatisfaction in Spain. The new Spanish cabinet issued the following statement in December: "Our designs (in Morocco) are pacific, our policy is a policy of conciliation and of intimate relations with the natives. . . . Meantime it is necessary for us to maintain the positions which we have occupied thanks to the efforts and heroism of our army, and the ability of our officers; and the positions whose occupation may be indispensable if we would assure our position and convince the rebels that Spain has the might to protect its rights and its interests."

MORPHINE. See COCAINE AND MORPHINE HABIT.

MORROW, PRINCE ALBERT. An American dermatologist, died March 17, 1913. He was born in Mount Vernon, Christian County, Ky., in 1843, and graduated from Princeton College, Kentucky, in 1864. He studied medicine at the University Medical College of New York, graduating in 1874. From 1884-1904 he was attending surgeon at the City Hospital, New York City. After holding important positions in other hospitals, he became in 1890 attending physician in the skin department of New York Hospital. Here he remained until 1904. He was also consulting dermatologist in other New York hospitals. For over twenty years he made a particular study of leprosy. In 1888 he spent the winter in the Sandwich Islands and visited the leper colony at Molokai. He was one of the first physicians of note to advance the theory that the nostrils are the port of entry for leprosy. He was a prolific writer of medical literature, and from its organization in 1905 was president of the American Society for Sanitary and Moral Prophylaxis. He was also the author of *Drug Eruptions* (1887); *Leprosy* (1899); *Social Diseases and Marriage* (1904).

MORTALITY RATES. See VITAL STATISTICS.

MOTHS. See ENTOMOLOGY.

MOTOR-BOATING. See YACHTING AND MOTOR-BOATING.

MOTOR FIRE APPARATUS. See FIRE PROTECTION.

MOTORS. See AERONAUTICS.

MOUNT HOLYOKE COLLEGE. An institution for higher education of women, founded at South Hadley, Mass., in 1837. The students enrolled in all departments of the college in the autumn of 1913 were 772. The faculty numbered 89, and the administrative staff 43. There were no noteworthy changes in the faculty during the year. There were received for scholarships $28,010. The productive funds of the college in 1912-13 amounted to $1,386,-119, and the income to $55,677. There were 50,000 volumes in the library. The president is Mary E. Woolley, M.A.

MOVING PICTURES. The popularity of the moving picture as a form of entertainment constantly widened with the development of the art, and by the year 1913 had become so comprehensive as to include not only a means of public entertainment, but one of demonstration and instruction as well. Moving pictures were used to a very great extent for instructing employes of railroads, factories, and machine shops as a part of the "Safety First" movement to which so much attention in the industrial world was being directed. To illustrate the safest method of operating a certain machine, for example, or the safest method to adopt when moving heavy machinery from one portion of a shop to another, are instances in which this system had been of great value. In many schools and colleges also, moving-picture apparatus was finding a constantly widening use for the instruction of students in the elementary branches of science.

In New York City the Educational Alliance had arranged to give moving picture shows for school children, to which the price of admission was to be 3 cents. It was decided to introduce these shows after a study had been made of the entertainments given at the alliance. District superintendents of the city schools announced that the exhibitions would be confined to educational and morally uplifting topics, rather than any that might unduly develop a taste for excitement and adventure in the minds of the children. It was advocated also by the New York Kindergarten Association that moving pictures be employed in the primary grades of the schools. This matter was, at the end of the year, not decided upon. Some enterprising manufacturers of automatic machinery recently made use of the moving picture machine through their selling department for the purpose of demonstrating to prospective customers the details of operation of such machines which would not ordinarily be visible to an observer.

Processes of manufacture were shown in great detail by moving picture films, and a prominent manufacturer of steel wire fencing exhibited before farmers' institutes and at the hardware trade conventions throughout the United States films descriptive of the modern methods of mining and shipping ore, manufacturing pig iron, the subsequent process of the conversion of the material into steel and thence through the mill to the finished product, wire; the exhibitions thus combining the advantages of advertising for the manufacturer with that of a broader instruction of the people at large.

Many estimates have been attempted to determine the amount of money invested in the moving picture business in the United States and Canada. At the close of the year 1913, the number of theaters was more than 20,000 and this number did not include existing houses that had substituted moving pictures for their regular theatrical business. The capital invested is certainly several hundred million dollars, and the difficulty of obtaining an accurate estimate of its amount was due to the fact that the manufacturing portion of the business involved an immense amount of capital which was not reported to any particular board or agency. In making up a photoplay, the time and expense involved in getting the actors together, staging, and making a satisfactory set of photographs is considerable. Add to this, the duplication of the original, so that the films may be used in many theatres simultaneously, and also the allowance for depreciation due to the short-lived popularity of the average photoplay, and it is possible to realize the large amount of money invested in this part of the industry.

There was considerable advance made in the design and construction of the projection machines used, with a view to giving clearer pictures and to diminishing the risk of fire in case of a stoppage of the film, which was the commonest cause of fires in these places of amusement.

From both a commercial and a sociological point of view, the popularity of this form of entertainment was constantly increasing. A reliable estimate stated that the average daily attendance at moving picture theatres in the city of Chicago exceeded 750,000 persons. In proportion to the 2,000,000 population of the city and its suburbs this was significant, and probably quite representative of the ratio that holds in other large cities.

This widespread popularity, and the ever-present desire of theatrical managers to secure new topics and scenes to enable them to hold it, naturally resulted in the necessity of facing many serious problems that at first were not foreseen. Among these may be mentioned the moral tone of the plays shown and the attitude of the public, the newspapers and the managers towards them; and of equal importance was the fire risk existing in the average badly planned and cheaply built hall, or theatre, in which such exhibitions were held. With regard to both these questions, the public was showing an encouraging tendency, in the light of events taking place during the year, to hold the officials of various grades concerned to a strict accountability, not only for the quality of the plays shown, but for the construction and regulation of the buildings in which they were displayed. There was a decided improvement in the design of these theatres, due to an aroused public interest and a much stricter examination by local building and fire department inspectors, accompanied often by more vigorous State statutes.

Considering the exhibition in a number of moving picture theatres of films whose purport was alleged to be to call the attention of the public to various forms of vice and arouse a general interest in the correction of these evils, it appeared as if the management running such reels had either sadly misjudged the public taste, or had overdone a matter which presented with more delicacy and discretion, might have resulted in a wholesome enlightenment of the public. As it was, there seemed to be a marked disgust expressed by the more discriminating and disinterested of the audience, and it was unlikely that such films would be run to any extent, until some modification and expurgations should have been made by a duly appointed board of censors.

While the idea of combining a phonograph, or talking machine, with a kinetoscope, known as the kinetophone, or "talking movies," was by no means new, and while several such machines were used in public for some time, they were not satisfactory, for the reason that where the connection between the two was simply mechanical, as was common, any irregularity of motion due to the wearing of bearings or inaccuracy of construction would cause one machine to run at a different rate from the other and spoil the effects produced. In order to obtain perfect synchronism between action and lines, an ingenious electrical connection was being developed and was said to give perfect results, the motor driving the projecting mechanism being controlled electrically by one of the circuits of the phonograph motor. It was said that all possible sources of irregularity and asynchronism had been eliminated, and the slightest change in the one circuit immediately affected the other, reproducing each sound with the motion accompanying it, exactly as enacted by those making the original film.

A decision was handed down in the chancery division of the High Court of Justice in England in the case of a petition for revoking a patent No. 26,671 granted to George Albert Smith for "improvement in and relating to kinematograph apparatus for the production of colored pictures." The decision was adverse and dismissed the petition in legal language. No ground was shown for the revocation of the patent and the petition was dismissed with costs. The court also granted the prayer of the respondent for a certificate that the validity of the patent had been brought into question. This decision, it was said, terminated finally the litigation over the invention of what is known as "kinemacolor."

MUNICIPAL BUILDINGS. See ARCHITECTURE.

MUNICIPAL EFFICIENCY. See MUNICIPAL GOVERNMENT.

MUNICIPAL GAZETTES. See MUNICIPAL GOVERNMENT under *Official Municipal Gazettes.*

MUNICIPAL GOVERNMENT. In the United States, the commission plan continued to be a country-wide movement and the commanding feature in municipal government. About a hundred cities adopted the plan in 1913; a few more than in any previous year. Next to the commission plan in general interest was the city-manager plan, which made a great stride during the year. The campaign for honesty, for greater efficiency, and for the freedom of municipal from State and Federal politics was continued on every hand, often with encouraging results.

COMMISSION PLAN. Probably no other innovation in municipal government ever spread so rapidly as did the commission plan, with its small confined legislative and municipal body elected at large by non-partisan means and its democratic control features of the initiative, the referendum, the recall, and publicity. Beginning at Galveston, Tex., in 1901 with the small all-powerful commission as the distinctive feature which had given the name to the plan, and continuing in 1905 with the adoption of a modified plan by Houston, the movement began to gain force in 1907 with the adoption of an improved plan by Des Moines, Iowa. In and since 1910 from sixty-five to a hundred cities have adopted the commission plan each year until at the end of 1913 385 places were included in the list. Reliable figures are not easily secured because the plan varies considerably from State to State and city to city, as well as in the minds of those who attempt to say what are and what are not commission cities.

The accompanying list of 385 cities is rearranged geographically from one compiled by the National Municipal League of Philadelphia, with five cities added from the 1913 list of the National Short Ballot Organization, New York City. Of the 40 States in the list, Texas leads with 41 and Kansas is a close second with 39 cities.

COMMISSION GOVERNMENT CITIES TO DECEMBER 31, 1913

(Compiled by the National Municipal League)

NEW ENGLAND DIVISION

Place	Date adopted		Population
	Maine		
Gardiner	1911		5,311
	Massachusetts		
Gloucester	1909	Charter	24,398
Haverhill	1909	"	44,115
Lawrence	1911	"	85,898
Lowell	1911	"	106,294
Lynn	1910	"	89,339
Salem	1912	"	43,697
Taunton	1909	"	34,259
	MIDDLE DIVISION		
	New York		
Beacon	1913		10,629
	New Jersey		
Atlantic City	1912	Walsh law	46,150
Beverly	1913	"	2,140
Bordentown	1913	"	4,250
Deal Beach	1912	"	2,400
Haddonfield	1913	"	4,142
Hawthorne	1911	"	3,400
Jersey City	1913	"	267,779
Long Branch	1912	"	13,298
Longport	1912	"	118
Margate City	1911	"	129
Millville	1913	"	12,451
Nutley	1912		6,009
Ocean City	1911	"	1,950
Passaic	1912	"	54,773
Phillipsburg	1913	"	.....
Ridgewood	1911	"	5,416
Ridgefield Park	1912	"	966
Sea Isle City	1913	"	551
Trenton	1912	"	96,815
Union	1913	"	21,023
Vineland	1913	"	5,282
Wallington	1911	"	3,448
Wildwood	1912	"	898
	Pennsylvania		
Allentown	1913	Act of 1913	51,913
Altoona	"	"	52,127
Beaver Falls	"	"	12,191
Bradford	"	"	14,454
Carbondale	"	"	17,040
Chester	"	"	38,537
Connellsville	"	"	12,845
Corry	"	"	5,991
Easton	"	"	28,532
Erie	"	"	66,525
Franklin	"	"	9,767
Harrisburg	"	"	64,186
Hazleton	"	"	25,452
Johnstown	"	"	55,482
Lebanon	"	"	19,240
Lock Haven	"	"	7,772
McKeesport	"	"	42,604
Meadville	"	"	12,780
New Castle	"	"	36,280
Oil City	"	"	15,657
Pittston	"	"	16,267

Place	Date adopted		Population
Pottsville	1913	Act of 1913	20,236
South Bethlehem	"	"	19,973
Reading	"	"	96,071
Titusville	"	"	8,533
Wilkes-Barre	"	"	67,105
Williamsport	"	"	31,860
York	"	"	44,750

SOUTH ATLANTIC DIVISION

Maryland

Cumberland	1910		21,839

West Virginia

Bluefield	1909	Charter	11,188
Fairmont	1913	"	9,711
Grafton	1913	"	7,563
Huntingdon	1909	"	31,161
Parkersburg	1911	"	17,842

North Carolina

Greensboro	1911	Charter	15,895
Hickory	1913	"	3,716
High Point	1910	"	9,525
Morgantown	1913	"	2,712
Raleigh	1913	"	19,218
Wilmington	1911	"	25,748

South Carolina

Columbia	1910	State law	26,311
Florence	1912	"	7,057
Orangeburg	1913	"	5,906
Spartansburg	1913	"	17,517
Sumter	1912	"	8,109

Georgia

Cartersville	1911	State law	4,067
Marietta	1911		5,949

Florida

Green Cove Springs	1911		1,319
Lakeland	1913		3,719
Largo	1913		291
Orlando	1913		3,894
Pass a Grille	1911		.....
Pensacola	1913		22,892
St. Petersburg	1913		4,127
Tampa	1912		37,782
West Palm Beach	1913		

NORTHERN CENTRAL

Ohio

Dayton	1913		116,577
Jackson	"		5,468
Lakewood	"		15,181
Middletown	"		13,152
Norwood	"		16,185
Springfield	"		46,921

Illinois

Braceville	1911	State law *	
Cairo	1913	"	14,548
Carbondale	1911	"	5,411
Clinton	1911	"	5,165
Decatur	1911	"	31,140
Dixon	1911	"	7,216
Elgin	1911	"	25,976
Forest Park	1911	"	6,594
Geneseo	1912	"	3,199
Hamilton	1911	"	1,627
Harrisburg	1913	"	5,309
Harvey	1912	"	7,227
Hillsboro	1911	"	3,424
Jacksonville	1911	"	15,326
Kewanee	1911	"	9,307
Marseilles	1912		3,291
Moline	1911	"	24,199
Murphysboro	1913		7,485
Ottawa	1911	"	9,535
Pekin	1911	"	9,897
Port Byron	1913		.....
River Forest	1913		.....
Rochelle	1911	"	2,732
Rock Island	1911	"	24,335
Springfield	1911	"	51,617
Spring Valley	1911	"	7,035
Waukegan	1911	"	16,069

Michigan

Battle Creek	1913	Home rule†	25,267
Cadillac	1913		8,375
East Jordan	1911	"	2,516
Fremont	1911	"	2,009

* Adopted by city. † Home rule law.

Place	Date adopted		Population
Harbor Beach	1910	Home rule †	1,556
Marquette	1913		11,503
Monroe	1913		6,893
Owosso	1913		9,639
Pontiac	1911	"	14,532
Port Huron	1910	"	18,863
Saginaw	1913		50,510
Traverse City	1913	"	12,115
Wyandotte	1911	"	8,287

Wisconsin

Appleton	1911	State law *	16,773
Ashland	1913	"	11,594
Eau Claire	1910	"	18,310
Janesville	1912	"	13,894
Ladysmith	1913	"	2,352
Menominee	1912	"	5,036
Oshkosh	1911	"	33,062
Portage	1912	"	5,440
Rice Lake	1912	"	3,968
Superior	1912	"	40,384

NORTH CENTRAL DIVISION, WEST

Minnesota

Duluth	1912		78,466
Eveleth	1913		7,036
Faribault	1911		19,001
Mankato	1910		10,365
Morris	1913		2,100
St. Cloud	1911		10,600
St. Paul	1912		214,744
Tower	1912		.....

Iowa

Burlington	1910	State law	24,234
Cedar Rapids	1908	"	33,811
Des Moines	1908	"	86,368
Fort Dodge	1910	"	15,543
Keokuk	1910	"	14,008
Marshalltown	1910	"	13,374
Mason City	1913	"	11,230
Ottumwa	1912	"	22,012
Sioux City	1910	"	47,826

Missouri

Joplin	1913		32,073

North Dakota

Bismarck	1909	State law	5,443
Devil's Lake	1912	"	5,157
Fargo	1913	"	14,331
Hillsboro	1913		.....
Mandan	1907	"	3,873
Minot	1909	"	6,188
Williston	1913	"	3,124

South Dakota

Aberdeen	1911	State law	10,753
Belle Fourche	1912	"	1,352
Canton	1910	"	2,103
Chamberlain	1910	"	1,275
Dell Rapids	1910	"	1,367
Huron	1910	"	5,791
Lead	1911	"	8,392
Madison	1912	"	3,137
Pierre	1910	"	3,656
Rapid City	1910	"	3,854
Sioux Falls	1908	"	14,094
Vermillion	1910	"	2,187
Watertown	1912	"	7,010
Yankton	1910	"	3,787

Kansas

Abilene	1910	State law *	4,118
Anthony	1909	"	2,669
Arkansas City	1912	"	7,508
Caldwell	1910	"	2,205
Chanute	1911	"	9,272
Cherryvale	1910	"	4,304
Coffeyville	1910	"	12,687
Council Grove	1911	"	2,545
Dodge City	1910	"	3,214
Emporia	1910	"	0,958
Eureka	1910	"	2,333
Fredonia	1913	"	3,500
Garden City	1913		3,171
Garnett	1913		2,334
Girard	1910	"	2,446
Great Bend	1912		4,622
Hiawatha	1911	"	2,974
Holton	1912	"	2,842
Hutchinson	1909	"	16,364
Independence	1909	"	10,480

Place	Date adopted		Population
Iola	1910	State law*	9,032
Junction City	1912	"	5,598
Kansas City	1910	"	82,331
Kingman	1912	"	2,570
Lawrence	1913	"	12,374
Leavenworth	1908	"	19,363
Manhattan	1911	"	5,722
Marion	1910	"	1,841
Neodesha	1910	"	2,283
Newton	1910	"	7,682
Olathe	1912	"	3,272
Ottawa	1913	"	7,650
Parsons	1910	"	12,463
Pittsburgh	1911	"	14,755
Pratt	1911	"	3,302
Sabetha	1913	"	
Topeka	1910	"	43,684
Wellington	1910	"	7,034
Wichita	1909	"	52,450

Nebraska

Place	Date adopted		Population
Beatrice	1911	State law	9,356
Lincoln	1912		43,973
Nebraska City	1912	"	5,488
Omaha	1911	"	124,069

SOUTH CENTRAL DIVISION

Kentucky

Place	Date adopted		Population
Covington	1912		53,270
Lexington	1911	State law	34,099
Newport	1910	"	30,309
Mt. Sterling	1913		3,932
Paducah	1913		22,760
Pineville	1913		2,161

Tennessee

Place	Date adopted		Population
Bristol	1913	Charter	7,148
Chattanooga	1911	"	44,604
Clarksville	——	"	8,548
Etowah	——	"	1,685
Jackson	1913	"	.....
Knoxville	1911	"	36,346
Lebanon	1913	"	3,659
Memphis	1909	"	131,105
Nashville	1913	"	110,364
St. Elmo	1911	"	2,426
Springfield	1913	"	2,085

Alabama

Place	Date adopted		Population
Birmingham	1911	State law	132,685
Cordova	1911	"	1,747
Carbon Hill	1912	"	1,627
Elba	1912	"	1,079
Hartselle	1911	"	1,374
Huntsville	1911	"	7,611
Mobile	1911	"	51,521
Montgomery	1911	"	38,136
Sheffield	1912	"	4,865
Talladega	1911	"	5,854
Tuscaloosa	1911	"	8,407

Mississippi

Place	Date adopted		Population
Charleston	1912	State law	2,000
Clarksdale	1910	"	4,079
Gulfport	1911	"	6,386
Hattiesburg	1910	"	11,733
Jackson	1912	"	21,262
Laurel	1911	"	8,465
Meridian	1912	"	23,285
Vicksburg	1912	"	20,814

Louisiana

Place	Date adopted		Population
Alexandria	1913	State law	11,213
Baton Rouge	1913	"	14,897
Donaldsville	1913	"	4 090
Natchitoches	1912	"	2,532
Hammond	1912	"	2,942
Jennings	1913	"	3,925
Lake Charles	1912	"	11,449
New Iberia	1912	"	7,499
New Orleans	1912	"	339,075
Shreveport	1910	"	28,015

Arkansas

Place	Date adopted		Population
Fort Smith	1913		23,975

Oklahoma

Place	Date adopted		Population
Ada	1912		4,309
Ardmore	1908	Home rule‡	8,618
Bartlesville	1910	"	6,181
Collinsville	1912		1,324
Duncan	1910	Home rule‡	2,477
Enid	1909	"	13,799
El Reno	1910	"	7,872
Holdenville	1911	"	11,654
Guthrie	1910	"	2,296
Lawton	1911	"	7,788
MacAlester	1910	"	12,954
Miami	1910	"	2,907
Muskogee	1910	"	25,278
Oklahoma City	1911	"	64,205
Okmulgee	1912		4,176
Pawhuska	1912	"	2,474
Purcell	1910	"	2,740
Sapulpa	1910	"	8,283
Stillwater	1911	"	3,444
Tulsa	1909	"	18,182
Wagoner	1910	"	4,018
Wewoka	1913		1,022

Texas

Place	Date adopted		Population
Abilene	1911	State law	9,204
Amarillo	1913	"	9,957
Aransas Pass	1910	"	1,197
Austin	1909	Charter	29,860
Barry	1910	State law	
Beaumont ...(modified)			20,640
Bishop	1912		
Corpus Christi	1909	Charter	8,223
Dallas	1907	"	92,104
Denison	1907	"	15,632
Elkhart	1910	"	
El Paso	1907	"	39,279
Fort Worth	1907	"	73,302
Franklin	1912		1,390
Frankston	1912		
Galveston	1901	"	36,981
Greenville ...(partial)	(1907)		8,850
Harlinger (abandoned)	(1910)		
Houston	1905		78,800
Kennedy	1910	State law	1,147
Lyford	1910	"	
McAllen	1911	"	1,896
McKinney	1912		7,000
Marshall	1909	Charter	11,452
Marble Falls	1910	State law	1,061
Nixon	1912		
Orange	——		5,527
Palestine	1909	Charter	10,482
Polson	1913		7,663
Port Arthur	1911	State law	1,699
Port Lavaca	1910		
Robstown	——		
San Benito	1911	"	
Spur	1911		12,412
Sherman	——		
Somerville	1913		
Spier	1913		
Sweetwater	1913		4,176
Taylor	1913		5,314
Terrell	1910	State law	7,050
Waco	1909	Charter	26,425
Willis	1912		

MOUNTAIN DIVISION

Montana

Place	Date adopted		Population
Missoula	1911	State law	12,869
Polson	1912		

Idaho

Place	Date adopted		Population
Boisé	1912	State law *	17,358
Lewiston	1907	Charter	6,043

Colorado

Place	Date adopted		Population
Colorado City	1913	Home rule‡	4,333
Colorado Springs	1909	"	29,178
Denver	1913	"	231,381
Durango	1912	"	4,686
Fort Collins	1913		8,210
Grand Junction	1909	"	7,754
Pueblo	1911		44,395

Wyoming

Place	Date adopted		Population
Cheyenne	1913		11,320
Sheridan	1911		8,408

Utah

Place	Date adopted		Population
Logan	1911	State law	7,522
Murray	"	"	4,057
Ogden	"	"	25,580
Provo	"	"	8,925
Salt Lake City	"	"	92,777

* Adopted by city. † Home rule law. ‡ Home rule charter.

Place	Date adopted		Population
New Mexico			
Las Vegas	1913		3,719
Roswell.....(modified)	(1910)	State law	6,172
Arizona			
Douglas	1913		6,437
Phoenix	"		11,134
PACIFIC DIVISION			
Washington			
Centralia	1911		7,311
Chehalis	1911		4,507
Everett	1912		24,814
Hoquiam	1911		8,171
North Yakima	1911		14,083
Olathe	1911		3,009
Spokane	1911	Home rule‡	104,402
Tacoma	1910	"	83,743
Walla Walla	1911	"	19,364
Oregon			
Baker City	1910	Home rule‡	6,680
La Grande	1912	City manager	4,843
Portland	1913	Home rule‡	207,714
California			
Berkeley	1909	Home rule‡	40,431
Modesto	1910	"	7,258
Monterey	1910	"	4,923
Oakland	1910	"	150,174
Pasadena	1912	"	30,291
Pomono	1911	"	10,207
Riverside	——	"	15,212
Sacramento	1911	"	44,696
San Bernardino	1912	"	12,779
San Diego	1909	"	39,578
San Luis Obispo	1911	"	5,157
San Mateo	1912	"	4,384
Santa Cruz	1911	"	11,146
Stockton	1911	"	23,253
Vallejo	1911	"	11,340
Canada			
St. John's, New Brunswick			

‡ Home rule charter.

Arranged geographically by groups of States the number of commission plan cities from greatest to least is as follows:

South Central	110	Pacific	27
North Cen. West.	86	Mountain	22
North Central	56	New England	8
Middle	52		
South Atlantic	28	Total	385

By years the growth of the commission plan was as follows:

1901	1	1910	66
1905	1	1911	96
1907	7	1912	67
1908	5	1913	112
1909	23	Not given	7
Total			385

In the early years of the commission plan nearly all the cities which adopted it were small and it was urged that it was not applicable to cities of considerable size. Gradually the size of the commission cities rose to 100,000 and then upwards until in 1912 New Orleans (population 339,030 in 1910) was included in the list. Four other of the cities had populations of more than 200,000 in 1910; eight had between 100,000 and 200,000 and nearly forty had more than 50,000 inhabitants. The total population of the cities which had adopted the commission plan up to the close of 1913 was given by the National Municipal League as 7,500,000. In addition to the cities of the United States one Canadian city, St. John, N. B., was reported as being under the commission plan.

The large accession to the commission plan list in 1913 was in no small part due to an act of the Pennsylvania legislature which brought all 23 of the third-class cities (below 100,000 population) under the commission plan. A second act enabled any one of 42 boroughs of the State having a population of 10,000 or more to adopt the commission plan, which was done by some of the boroughs in 1913. The Pennsylvania commissions consist of a mayor, who serves four years, and four councilmen, who serve two years each. All are elected at large, as is also a controller. A city solicitor, engineer, treasurer, assessor, and clerk are appointed for two years by the commission. The commission fixes the salaries of its members within a wide stated range. It was said that this would facilitate the adoption of the city manager plan—under which it was common for the commissioners to serve for a nominal salary. The recall feature was omitted from the act. No provision was made for civil service and little was stipulated as to the qualifications of administrative officers. Unusual dignity and importance was given to the office of city engineer. That official must be a "competent civil engineer" and was to have the "direction and control of the engineering matters of the city," besides appointing his own assistants.

City Manager. The adoption of the city manager plan by 13 cities during the year 1913 led many persons to believe that it was going to sweep over the country as did the commission plan. There was at least some warrant for this belief since the manager plan made more rapid progress in this one year than did the commission plan in its first six years, and since the manager plan was being adopted by commission plan and non-commission plan cities. The forerunner of the city manager plan and in the opinion of some the first city to adopt it was Staunton, Va., in 1907 or 1908. In 1911 a proposed new charter for Lockport, N. Y. (which never went into effect), provided for a city manager. In 1912, Sumter, N. C., decided for a city manager along lines more like the proposed Lockport plan than like the plan in effect at Staunton. In 1912, also, Norwood, Mass., combined in one official position the duties of town engineer, superintendent of public works, and director of the water and lighting systems. A similar combination of offices was made at Clarinda, Ia., in 1913. Neither the Staunton, Norwood, nor Clarinda managers appeared to have so full powers nor such a relation to the legislative division of the respective municipalities as was required by the city manager plan, as promoted by the National Short Ballot Organization. In the conception of the association just named the city manager exercised all executive functions, including appointment to all other executives, but was himself subject to the control of the city commission or council, which appointed and at any time might discharge the manager. Under this definition Sumter was the first city to adopt the plan and, all told, 14 cities had adopted it at the close of 1913.

These cities, with their populations by the U. S. Census for 1910, are as follows:

Hickory, N. C.	3,716	River Forest, Ill.	.....
Morris, Minn.	1,685	Morganton, N. C.	2,712

Sumter, S. C.	8,109	Abilene, Kan.	4,118
Dayton, O.	116,577	Amarillo, Tex.	9,957
Middletown, O.	13,153	Terrill, Tex.	7,050
Springfield, O.	46,921	Phoenix, Ariz.	11,134
Cadillac, Mich.	8,675	La Grande, Ore.	4,843

If Stanton, Norwood, and Clarinda be added (see text), the list would number 17 cities and towns. Westmount, Quebec, also appointed a city manager in 1913, after public advertisement for applicants.

It will be noted that Dayton and Springfield were the only cities of any size that had adopted the city manager plan. The plan seemed to be particularly well adapted to small cities, which would not be able to hire a well-trained man to become head each of a number of city departments, but could well afford to pay a high salary to a single administrator of broad experience and high ability. The city manager plan had more generally than otherwise been adopted as an adjunct of the commission plan. It was thought that this fact, and the strong advocacy in some quarters combining the two plans was a confession of weakness in the commission plan which had been noted by important observers almost from the start: The attempt to elect executive officers and make them a combined legislative and administrative body, without a head or leader.

Under the new commission-manager charter (1913) of Dayton, Ohio, the city manager is appointed by the commission without regard to political beliefs or residence. He holds office at the will of the city council and in addition is subject to recall by popular vote. It is his duty to see that the laws are enforced; to appoint and remove all heads of departments and all subordinate officials and employes, subject to certain civil service rules, all appointments to be based on "merit and fitness alone"; to exercise control over all city departments; to attend all meetings of the commission, with the right to take part in the discussions but with no right to vote; and to keep the commission advised as to the financial condition and needs of the city. The Dayton manager has power to cause an investigation to be made of any department or of the conduct of any officer or employe of the city. His salary is fixed by the commission. Late in 1913 the Dayton commission appointed as city manager, at a salary of $12,500 a year, H. M. Waite, at that time city engineer of Cincinnati, Ohio. For an exposition of the city manager plan, as conceived by the National Short Ballot Association of New York City, see a bulletin issued by the association late in 1913. The bulletin will also be found to contain city manager charter provisions, both for cities which have adopted and for those which have rejected the plan.

Home Rule. It had long been an anomaly that cities of so democratic a country as the United States should have far less freedom than those of some of the most strongly monarchical countries of Europe. In America both theory and practice had been until recently, and still was in most commonwealths, that the city was merely the creature of the State. Accordingly a large proportion of American cities had to go to their State legislature for any and every minor change in their frame of government and in many cases for authority to increase the salary of a city official. For several decades freedom from legislative control over city charter had been increasing in the Western States and latterly this freedom had been granted in greater or less degree to some or all the cities of several States in the Middle West. The so-called home rule States in 1913 included California, Oregon, Washington, Idaho, Colorado, Texas, Oklahoma, Nebraska, Minnesota, Michigan, and Ohio. Some degree of home rule was granted to the cities of New York in 1913 by an act which increased the general powers of municipalities, but this act carried no authority to adopt or amend charters. The home rule principle was upheld during the year by the courts of Colorado and Ohio, the new locally-framed charter of Cleveland being at issue in the Ohio decision. Acting under an Ohio constitutional amendment of 1912 not only Cleveland but also a number of other Ohio cities framed new charters through local charter drafting commissions elected by popular vote, the charters also being approved by popular vote.

Public Utility Commission. By 1913 Wisconsin and New York public utility commissions, which had not been established many years before, were copied more or less closely by many other States. These commissions have control of the rates, quality of service and capitalization of companies operating under municipal franchises. The Wisconsin commission and the Massachusetts gas and electric commission (established two decades or so before any of the other commissions) have control over municipally as well as privately owned utilities. The extreme home rule advocates objected strongly to the State utility commissions, urging that the regulation of street railway and lighting companies, etc., should be left entirely to the local authorities. This contention overlooked the fact that the State utility commissions were established because the municipalities were unable or unwilling to regulate the franchise companies and the further fact that the larger expert staff, financial resources, and experience of the State commissions enabled them to exercise more efficient and economical control than could local commissions.

Instruction in Municipal Government. An encouraging factor in the municipal field was the attention which the universities and colleges of the United States were giving to the subject of municipal government. According to figures gathered by Prof. William B. Munro (see *National Municipal Review*, July, 1913) in behalf of a committee of the National Municipal League, no less than 64 institutions were giving "independent and distinct instruction" in municipal government in 1913, as compared with 46 five years earlier. The enrolled students in 1913 ranged from 5 to 86 per institution. The article mentioned contains a table showing what institutions had courses devoted wholly and what partly to municipal government, the number of courses offered, the amount of time given to each, and the number of undergraduate and graduate students enrolled at each institution.

Official Municipal Gazettes. The United States is almost the only one of the leading nations of the world which does not supply its people with information of its activities through an official gazette. What the government has failed to do, several cities have attempted. The following is a partial list, compiled by Henry J. Harris, Library of Congress, of the cities which publish official journals for general information concerning the activities of the municipality. The name of the periodical is also given:

Atlantic City, *Commission Government.*
Boston, Mass., *Monthly Bulletin;* issued by the statistics department.
Baltimore, Md., *Municipal Journal;* issued semi-monthly.
Burlington, Ia., *Proceedings of the City Council under the Commission Plan of Government;* monthly...
Centralia, Wash., *Monthly Summary of Proceedings,* and itemized statement in detail of the receipts and expenditures of the city commission.
Chattanooga, Tenn., *Municipal Record;* issued monthly.
Colorado Springs, Col., *Summary of Proceedings and Department Reports;* issued monthly.
Denver, Col., *The City of Denver;* issued semi-monthly by the city and county of Denver. Successor to *Denver Municipal Facts.*
Houston, Tex., *Progressive Houston;* issued monthly.
Lexington, Ky., *The City of Lexington.*
Los Angeles, Cal., *Los Angeles Municipal News;* discontinued in 1913.
Memphis, Tenn., *Commission Government.*
New York, N. Y., *The City Record;* issued daily by the board of city record.
Omaha, Neb., *Municipal Statistics;* issued monthly by the department of accounts and finance.
Philadelphia, Pa., *Philadelphia;* issued monthly; discontinued.
San Francisco, Cal., *Municipal Record;* issued weekly.
San Jose, Cal., *Municipal Record;* issued monthly.
Seattle, Wash., *Municipal News.*
Spokane, Wash., *Official Gazette.*
Tacoma, Wash., *Municipal Bulletin;* issued monthly.

SOCIAL CENTRES. The social centre movement, at first local in character and depending upon private initiative, had become national in extent and had a large amount of public support. In 1910 a bureau of social centre development was established as a part of the extension division of the University of Wisconsin, with Edward J. Ward, who had been active in that line of work in the city of Rochester, as adviser. In 1911 a national conference on social centre development met at Madison, Wis., and the Social Centre Association of America was formed. Its aim was to utilize public school buildings for all sorts of municipal activities, notably for voting, as well as for educational, recreational, and purely social purposes. Various features of this plan had been adopted by different American cities. In Grand Rapids the kindergarten was used as a voting place. In Los Angeles, to meet the needs of the newly-enfranchised women voters for a decent place to cast their ballot, the public school buildings were thrown open. In Chicago and New York recreational centres had been established in buildings especially devoted to recreation. New York had thirty-eight such centres. At least five States passed laws authorizing the use of public school buildings for general community gatherings. Wisconsin, the pioneer in State legislation on this subject, enacted a law in 1910, authorizing school trustees or school or other boards to grant to organizations of a civic, social, or recreational nature, the use of schools for public meetings on petition of one-half the voters in the district. Similar legislation was enacted in Ohio and Indiana in 1913. The Massachusetts law authorized the school committees of any town or city except Boston to conduct educational and recreational activities in or upon school property and to allow private associations to do the same, under regulation and without charge to the public.

In California the law established a civic centre at every school house in the State, to be under the control of the school trustees or district boards of education. Light, heat, janitor service, and a special supervising officer were to be provided out of the school funds. Consult: Ward [Editor], *The Social Centre* (New York, 1913); Perry, *The Wider Use of the School Plant* (New York, 1910).

Statistics of Social Centres. In the Recreation Census for the year ending November 1, 1913, completed by the Playground and Recreation Society of America, the following statistics were given regarding the use of school houses as social centres in the United States: "In 79 cities, last year, school houses were used as recreation centres. Seventy-four of these cities reported 368 such centres. In three additional cities 65 schools were used for lectures." Of these 82 are included in the 342 cities whose recreation centres had paid supervision. Of the 300 other communities which had recreation centres but no paid supervisors "55 cities reported evening recreation centres in their schools. Fifty-one of these cities reported 96 such centres." Altogether the wider use of public schools was seen in 137 cities last year, of which 128 cities reported 529 school centres. In the previous year (1912) 114 cities reported the evening use of schools; in 102 of these cities there were 357 such centres.

WOMEN HOLDING OFFICE. There were few municipal offices, whether elective or appointive, that were not held by women in one or more cities at the close of 1913. The following cities had women mayors: Warrenton, Ore.; Tyro, Kan.; Hunnewell, Kan.; Dayton, Wyo.; Anadia, Ill. Thirteen cities, of which eight are in Colorado, had women city treasurers. Atlantic City, N. J., made a woman city comptroller. One Kansas city and one Colorado city had a woman auditor. There were five city clerks, seven judicial officers, one alderman, and twenty-six policemen (most of them with very special duties) on this partial list of women municipal office holders published by Jane Campbell in the *National Municipal Review* for January, 1914. In addition Miss Campbell gave a miscellaneous list of women office holders containing about thirty names. This did not include about 500 school superintendents and many other officials connected with the public school system.

GRAFT. Those who wish to enter an unpleasant part of the municipal government may consult a "Review of Graft Prosecutions and Exposures for the Past Year," by C. R. Atkinson, in *The National Municipal Review* for July, 1913. Major cases or investigations were reported for New York, Chicago, Philadelphia, Atlantic City, Detroit, Des Moines and Clinton, Iowa, West Hammond and Gary, Ind., Milwaukee, and Bloomsburg, Pa.; eleven cities in all. Minor cases are reported briefly for 13 additional cities, and mention was made of 11 more cities for which sufficient data was lacking.

BIBLIOGRAPHY. Howe, *European Cities at Work* (New York); Pollock and Morgan, *Modern Cities* (New York); McVey, *The Making of* *a Town*. By far the most extensive single source of information on the various phases of municipal affairs is *The National Municipal Review*, a quarterly published by the National Municipal League of Philadelphia. Besides essays, short articles, and scores of notes classified under various heads, each number contains reviews of reports, documents, and books, and also an extensive bibliography.

See also BATHS; CITY PLANNING; GARBAGE AND REFUSE DISPOSAL; MUNICIPAL OWNERSHIP; ROADS AND PAVEMENTS; SEWAGE PURIFICATION; SMOKE ABATEMENT; WATER PURIFICATION.

MUNICIPAL LEAGUE, NATIONAL. The annual meeting of the league was held at Toronto, November 15, 1913. At this meeting the committee on franchises presented an elaborate report discussing the question of local and State regulation. The committee in general took strong ground against making State regulation on street railways, telephones, electric and gas plants, and other public utilities, exclusive. The committee on commission government reported at length, showing wherein the city manager plan was to be regarded as a logical development of the commission form of government. Several of the speakers pointed out wherein this plan represented a completer and more effective unification of the administrative work of the city, making possible the retention of prominent professional experts, and therefore opening a new career with great possibilities. Other committees which reported were on municipal budgets, municipal reference libraries, the liquor question, and on municipal courts. New committees were authorized on political methods, on the cost of living, and on experts. The following officers were elected: President, William Dudley Foulke; vice-presidents, Miss Jane Addams, John Stuart Bryan, Camillus G. Kidder, George McAneny, J. Horace McFarland, Charles Richardson, Chester H. Roell, Dudley Tibbits, A. Lawrence Lowell; secretary, Clinton Rogers Woodruff; treasurer, George Burnham, Jr.

In September, 1913, a department of civic education was established, with Arthur W. Dunn as director. This new department will have charge of the coördination and extension of the work of the public schools in the matter of civic education. Maurice Fels was made chairman of the committee in charge. The league also established during the year the National Municipal League Series. This consisted of four volumes: *City Government by Commission*, by Clinton Rogers Woodruff; *The Initiative, Referendum and Recall*, by William Bennett Monroe; *The Regulation of Municipal Utilities*, by Clyde Lyndon King; and *The Social Centre*, by Edward J. Ward. The league continues to publish the *National Municipal Review*, a quarterly discussing municipal questions.

MUNICIPAL OWNERSHIP. In 1913 San Francisco, Denver, and Indianapolis were the only cities of the United States which did not own their water-works. During the year San Francisco began condemnation proceedings to acquire the water-works of the Spring Valley Water Company, and secured Congressional authorization to build a dam and aqueduct in the Yosemite National Park for an additional water-supply (see WATER-WORKS). In Denver agitation for municipal ownership of water-works was continued. Besides the purchase of the plant of the Denver Union Water Company the city had under consideration a joint water-supply and railway tunnel scheme. If this was carried out the city would contribute $3,000,000 toward the building of a tunnel through the Continental Divide for the Denver and Salt Lake Railroad (the "Moffatt Road" under a new organization). The tunnel would also accommodate a water conduit from the headwaters of the Grand River, on the western slope of the Divide. A tentative agreement was made for the city purchase of the property of Des Moines Water-works Company, but ratification by popular vote had not been attempted at the close of the year.

The municipally-owned street railway lines at San Francisco were being extended during the year, and there was a movement at Toronto, Ontario, to buy the privately-owned street railways which serve that city.

A municipal milk distribution system for Jamestown, N. Y., was recommended in October by S. A. Coolson, mayor of that city. A committee of the council endorsed the recommendation. Late in December the matter was before the legal department for report. The plan was for the city to pasteurize all milk at one station and establish a single delivery system, in place of the present seventy-five private milk distributers. The estimated capital cost of the prospect was $30,000.

Legislation authorizing municipal ownership of one kind or another in ten different States was passed in 1913. See *National Municipal Review*, October, 1913, for this legislation, and same, January, 1914, for notes on municipal markets and slaughter houses. The Georgia Supreme Court declared constitutional the issue of bonds for a municipal ice plant, and the attorney-general of Ohio ruled that under the new Ohio constitutional amendments cities cannot make and distribute ice.

MURRAY, ROBERT. An American soldier, died January 1, 1913. He was born at Elk Ridge, Maryland, in 1822, and was educated privately and at the University of Pennsylvania. Appointed assistant surgeon in the United States army in 1846, he was transferred to California and served in several posts in that State until 1850, when he returned to Fort Independence, in Boston. In 1854 he again returned to California and was promoted to be surgeon. In the following year he became medical director and purveyor of the Department of the Cumberland. In 1862 he went to Philadelphia, and remained there until 1865. He received brevets of lieutenant-colonel and colonel for services in the Civil War. From 1867-76 he was medical purveyor of the military division of the Pacific at San Francisco. He was medical director of the division of Missouri in 1882. Coming again to the East he was assigned as medical director of the division of the Atlantic and the Department of the East. In 1883 he was appointed surgeon-general of the United States army, and three years later was placed on the retired list.

MUSEUMS OF ART. See PAINTING AND SCULPTURE.

MUSIC. Following an established custom, a brief summary of the principal events of the last four years precedes the record of musical events of the past year. When Mr. Gatti-Casazza assumed the directorship of the Metropolitan Opera House, the Manhattan Opera

House under Mr. Hammerstein had come to be a formidable rival. The effect of this rivalry was noticed in a marked improvement in the chorus and stage management of the other institution (1908). The next year the Metropolitan company almost doubled its forces in all departments. The season at both houses closed with a heavy deficit. Boston opened its own opera house with a brilliant company. The New York Philharmonic Society, which for several years had been declining, was entirely reorganized under Gustav Mahler (1909). The enormous expenditures incurred through the production of many new operas and the payment of exorbitant salaries to the principal artists forced Mr. Hammerstein to withdraw and sell all his interests to his rival. The greater part of his company was formed into a new organization, the Chicago Opera Company, under Mr. Dippel. In order to prevent a recurrence of conditions leading to financial ruin, the three opera companies of New York, Boston, and Chicago apportioned the territory among themselves and adopted a plan to exchange their principal artists (1910). This understanding was strictly observed and resulted in great saving. But still more important was the effective resistance that was opposed to the so-called Opera Trust controlled by the house of Ricordi of Milan. Not only had the trust become more and more tyrannical in its demand for exorbitant royalties on the works it controlled—they included almost the entire operatic output of Italy—but it practically dictated what Italian works were to be produced, irrespective of the wishes or taste of the audience. The failure of Puccini's *Girl of the Golden West* brought matters to a climax. Mr. Dippel immediately eliminated all of Puccini's works from his repertoire (1911). The differences between the American opera houses and the trust were finally adjusted. Operas by American composers were produced, and the movement for the production of opera in the vernacular was rapidly gaining ground. The activity of musical scholars, especially in Germany, resulted in the discovery of several manuscripts of Beethoven, Bach, Liszt, and Schumann in hidden corners of old libraries (1912).

General News. The year 1913 brought to light some forgotten manuscripts. In an old chapel on the estate of Count Fürstenberg near Donau Eschingen an unknown symphony of Haydn, written in the master's humorous vein, was discovered. It was performed at Baden-Baden. The Schumann Museum at Zwickau acquired the manuscript of a short treatise on counterpoint written by Schumann for his pupil, C. G. Ritter, in 1847-48. On the first page is written in the master's own hand: "Not intended for publication." In order to increase the fund for the Chopin monument to be erected in Warsaw, the family of Count Scheremetje turned over to the monument committee an "Album Leaf" written by Chopin in 1843 into an album belonging to Countess Anna Scheremetje. The existence of this composition was unknown to any but the immediate family.

If formerly young composers found it difficult to obtain a first hearing, conditions have radically changed in recent years. A cursory glance over programmes of musical organizations all over the world shows a formidable array of unknown names and an endless list of new works by composers of greater or less reputation. The statistics of Germany for the past year show that no less than 265 new operas by composers of all nationalities were given in Germany alone. It is safe to predict that over 250 of these will never find their way to any other stage. It is not that the public has developed this craze for novelties; but the rivalry of organizations is responsible for this state. Everywhere complaints are heard that the public does not support new works, so that at last the London Symphony Society has had the courage to announce in its last prospectus that no novelties will be produced during the ensuing season (1913). It states explicitly that too much time and energy is expended in rehearsing works which no one wishes to hear a second time, while the masterpieces of the great composers are neglected.

During the year the musical world followed with intense interest the petition presented to the German Reichstag by the Wagner family for an extension of the copyright of *Parsifal*, which expired on December 31, 1913. To the sincere joy of all lovers of music the petition was denied, and opera houses throughout the civilized world at once began preparations for the earliest possible production of this masterpiece. Toward the end of the year the rivalry was so keen that several houses announced the first performance to begin on the stroke of midnight of December 31. Barcelona even announced the beginning at 11 o'clock, corresponding to midnight of Central European time. Zürich did not wait till the end of the year, but produced the work already during the summer. As a matter of record it may be stated that up to January 1, 1914, *Parsifal* had forty-three performances at the Metropolitan Opera House in New York, and a considerable number of performances of excellent quality by the Savage Opera Company, in English, during the season 1904-5.

The United States

Artists: Instrumentalists. The idol of Americans, Paderewski, made his ninth American tour and proved that his hold on the American public is still as strong as ever. His art was at its highest even when he first came here in 1891, but it has not declined. The only fault that must be charged against him is an occasional forcing of the tone of the instrument beyond its proper limitations. A new artist of the first rank was Max Pauer, who in Boston was acclaimed a second Paderewski and made a profound impression everywhere. An English pianiste, Ethel Leginska, proved herself an excellent artist, and scored genuine success. Eleanor Spencer, a native American, made her début in her native land after she had established a European reputation in eight successful seasons abroad. Her sterling qualities won the unstinted approval of her compatriots. Harold Henry of Chicago, proved himself a serious artist whose further career will be watched with interest. Josef Hofmann may now be regarded as having attained his full artistic height. There is no pianist living who surpasses him in any respect. He is one of those very rare cases where a child prodigy has fulfilled in the fullest measure the early expectations. After an absence of several years Teresa Carreño was heard again by large and enthusistic audiences, whose attitude was decidedly at variance with that of some critics who believed they detected a falling off in her former mastery of the instrument. That the year was an exceptional one for brilliant pianistic achievements becomes evident from the mere enumeration of the names of the other eminent pianists whose fame is securely established, and calls for no special comment. The gentlemen included Bachaus, Godowski, Scharwenka, Lhevinne, Ganz, Schilling; the ladies, Fannie Bloomfield-Zeisler, Tina Lerner, Katharine Goodson, Germaine Schnitzer, Yolanda Merö.

Among the violinists attention was chiefly centred upon Ysaye. He still drew enormous audiences, although it became evident that he has passed the zènith of his powers. His playing was very unequal. At times he was the incomparable master of former years, at other times he seemed listless, and even his former impeccable purity of intonation left much to be desired. The fact that as recently as 1911 Kubelik had announced his farewell American appearance did not prevent that master from coming again and playing to crowded houses. His joint concert with Mme. Melba at the Hippodrome in New York established a new record for attendance. After a few performances with the Boston Symphony Orchestra during the preceding year, Kreisler was heard again in a number of recitals, and impressed many as being the greatest living master of the violin. One of the concerts of the Philharmonic Society of New York became of special significance from the fact that Maude Powell played the Tschaikowski concerto just twenty-five years after she had first introduced that masterpiece to America in a concert with the same organization. Elman, Zimbalist, Hartmann, Persinger, and Kathleen Parlow also contributed to the artistic offerings of the year. The noble 'cello was represented by such artists as Alwin Schroeder, Leo Schulz, Paulo Gruppe. A newcomer was the English 'cellist, Beatrice Harrison. Although her tone was not large, it possessed an excellent carrying quality, and the impression made by the artist was most favorable.

VOCALISTS. The famous Dutch contralto, Julia Culp, visited America for the first time. Her wonderful voice and supreme art immediately won enthusiastic recognition. By the end of the year she had securely established herself as one of the prime favorites. Another new artist of the first rank was the great contralto of the Hamburg Opera, Ottilie Metzger, who appeared only in two concerts of the Philharmonic Society, but even so left no room for doubt as to her rank among the world's great contraltos. The tour of Mme. Melba, who sang only in concerts, and chiefly in conjunction with Kubelik, was a succession of triumphs. It was remarked that time had scarcely affected her beautiful voice, and that she had shown greater intensity of feeling than ever before. After an absence of fourteen years Clara Butt, the renowned English contralto, visited America once more. While her voice sounded as full and fresh as in former years, her mere mechanical skill had grown considerably. Just before the close of the year a German baritone, Franz Egenieff, introduced himself in a recital and created a very favorable impression. That Mme. Nordica has practically abandoned the stage and is devoting herself to concert singing—not lieder recitals,—is cause for sincere regret. Unsurpassed as a dramatic singer, especially in the Wagnerian rôles, on the concert platform she cannot satisfy the fastidious because her programmes are generally arranged with poor taste. To complete the record of the year's profusion of vocal offerings of the first order it is sufficient merely to mention the names of such recognized artists as Mmes. Schumann-Heink, Sembrich, Alda, Gluck, Gadski, Farrar, Teyte Gerhardt, and Messrs. Bonci, Hess, Griswold, Witherspoon, Hinshaw, McCormack, Clément.

ORCHESTRAS. The Boston Symphony Orchestra (Karl Muck) reports the most prosperous season since its foundation in 1883. Not less than 109 concerts were played, including two for the benefit of the pension fund. Its famous harpist, Heinrich Schnecker, who died during the year, was succeeded by Alfred Holy, of the Imperial Opera of Vienna. The great reputation which this famous American orchestra enjoys can readily be seen from the fact that for Mr. Schnecker's position not less than two hundred applications were received from all parts of the world. The third season of the New York Philharmonic Society under its new conductor, Josef Stransky, proved that the choice of the directors was a happy one when they selected Mr. Stransky to succeed the late Gustav Mahler. Mahler's policy has been faithfully and efficiently carried out, and the results of unceasing rehearsal are plain. The orchestra is now in all respects the equal of the famous Boston organization. The year witnessed several changes in the personnel of the society, the principal one being the advent of Leopold Kramer, formerly of the Theodore Thomas Orchestra and the Chicago Opera Company, as concertmaster. The Theodore Thomas Orchestra (Frederic Stock) changed its name and was officially incorporated as the Chicago Symphony Orchestra. Its season was marked by the production of an unusual number of novelties, two of its concerts having been devoted exclusively to works by American composers. The Minneapolis Symphony Orchestra (Emil Oberhoffer) played 109 concerts in 52 different cities in twelve States, performing 139 compositions. The Cincinnati Symphony Orchestra (Ernst Kunwald) was increased to 85 players, and extended its activities. Every year reports are received of the establishment of new symphony orchestras in all parts of the United States, a gratifying testimony to the growth of musical culture. Thus San Francisco reports the establishment of the Peoples' Philharmonic Orchestra of 55 performers under Herman Perlet, while the older symphony orchestra under Henry Hadley reports a satisfactory season. Denver also now boasts two symphony orchestras since Raffaele Cavallo continued his popular summer concerts as regular symphony concerts through the winter. Cleveland established a municipal orchestra of forty performers under Christian Timmner to give free concerts in the parks from June to September. During the winter months it is increased to fifty players, and gives symphony concerts at the Hippodrome. Since the dissolution of its fine orchestra in 1910, Pittsburgh has been in a rather sad plight. The concerts given by visiting orchestras under the auspices of the Pittsburgh Orchestra Association have met with so little success that the association during the past year announced its intention of abandoning all orchestral concerts. Thereupon the Pittsburgh Festival Orchestra under Carl Bernthaler undertook to provide a number of symphony concerts for the winter.

Novelties. The number of novelties provided by the more important orchestras was unusually large, but little of real value was heard. In fact, considerable adverse criticism was directed against Dr. Muck and the Boston Symphony Orchestra for the poor quality of most of the new works brought out. The Philharmonic Society under Mr. Stransky introduced two works by Max Reger, both of which were very fine. The first was a new *Romantische Suite*, op. 125, the second a *Ballet Suite*, op. 130. In neither work does the composer employ more than a moderate orchestra, but he obtains splendid effects. The Minneapolis Orchestra under Emil Oberhoffer gave the first performance in America of Richard Strauss's latest work, *Festliches Präludium*, op. 61, a work written especially for the dedication of a new auditorium in Vienna. It contained little inspiration and much noise. Under Dr. Kunwald the Cincinnati Orchestra produced a tone-poem by Friedrich Gernsheim, *Zu einem Drama*, a really beautiful and inspired composition. Another work well worth hearing was the Second Symphony in E minor by Henri Rabaud, played by the Philadelphia Orchestra under Leopold Stokovski. For the purpose of introducing new instrumental compositions by modern Italian composers an orchestra calling itself the Italian Symphony Orchestra gave under Cesare Sodero a programme which contained Martricci's Symphony in D, in every respect a noteworthy work. Among the many novelties produced by the Chicago Orchestra under Mr. Stock the first place belongs to a Symphony in E minor, op. 115, by Hans Huber. It is a work in the established classical form, full of noble ideas. A concerto for violin and orchestra in A minor by Heinrich Moreen, though scored rather heavily, proved very effective. Reinhold Glière's symphonic poem, *The Sirens*, made a real and deep impression. On the other hand Arnold Schönberg's *Fünf Orchesterstücke* was received with hisses and loud laughter—a reception probably unique in the history of serious concerts in America. The New York Symphony Society under Walter Damrosch likewise offered a number of novelties, of which the *Fourth Symphony*, in A minor, by Sibelius was the most important. It is very sombre and lacking in obvious charm, but withal fascinating. While not easy to grasp at a first hearing it well repays closer study. The *Tableaux symphoniques* by Ernest Fanelli, of which only two sections were played, though musically of little intrinsic value, were very interesting as exhibiting the later style of Debussy, while the latter was still a boy. A *Funeral March* by Grieg, composed in memory of Nordraak, while not important was of some interest. Sir Edward Elgar's symphonic poem *Falstaff*, this composer's latest work, was as dull, uninspired, and insignificant as his two symphonies. An orchestral suite *Le printemps* by Debussy caused some surprise, as it seemed to indicate a return to the established scales. The mystery was solved when it was discovered that this composition, published in 1913, was in reality only an expansion of an earlier work written in 1889.

Choral Societies. While not discarding the older oratorios and choral works many of the larger organizations were extremely active in the production of new works. By far the most important of these was *Eine deutsche Messe*, by Otto Taubmann, presented by the New York Oratorio Society under Louis Koemmenich. This work is unquestionably one of the most notable choral works written since Brahms. The same society produced Georg Schumann's *Ruth*. Though lacking in individuality and strongly influenced by Wagner, the music is very beautiful and effective. The Cecilia Society of Boston under Arthur Mees introduced to America Florent Schmitt's *Forty-sixth Psalm*, a typical work of the ultra-modern French school. Mr. Mees had also intended to give the first American performance of Sir Edward Elgar's *Music Makers* on April 17. The concert actually took place on that date, but the honor—if such it be—of a first production was snatched away from Mr. Mees by the Columbia University Chorus under Prof. Walter Hall, who gave the work on April 16 in New York. Neither the Boston nor the New York audience showed great interest in the work. The MacDowell Chorus of New York, under Kurt Schindler, was reorganized as the *Schola Cantorum*, and under its new name brought out Richard Strauss's *Der Abend* (written for 16 parts) and Granville Bantock's *Atalanta in Calydon* (for 20 parts). Both works showed the excellent work of the society to great advantage, but proved decided disappointments musically. A new society cultivating a so far practically unknown field was founded by N. Lindsey Norden in New York. The Æolian Choir, consisting of 45 trained boys' and men's voices, gave during its first season ten concerts of a cappella Russian church music. Almost all the works performed were unknown in America, as well as many of the composers. The chief reason why such remarkable compositions have not been introduced long ago seems to be the fact that all are available only with Russian text. Mr. Norden is producing these works in English, in which form he is also publishing them through G. Schirmer of New York.

Chamber Music. To the large number of existing chamber music organizations two important additions were made. For several years the Longy Club of Boston, consisting of wood-wind instruments, has had a small, but highly-appreciative and cultivated following. Four seasons of the Barrère Ensemble, a similar organization, have created a taste for that class of music also in New York. The Boston club, in addition to their home concerts, now also gives a season in New York under the name "Longy New York Modern Chamber Music Society." At the same time ten members of the New York Philharmonic Society, flute, oboe, clarinet, bassoon, horn, and string quintette, have organized the "Philharmonic Ensemble." Every one of the artists of the two organizations is a virtuoso upon his instrument. The success of the famous Flonzaley Quartette (Bette, Pochon, Ara, d'Archambeau) has been such that during the past year they have been obliged to extend their tour to the principal cities from coast to coast.

Music Festivals. Among the festivals of the year may be reckoned the innumerable extra concerts given by all organizations throughout the country, orchestral and choral, large and small, in honor of the centennial of the birth of Wagner and Verdi. In Cleveland the Chicago Orchestra under Mr. Stock with Fremstad, Jörn, and Witherspoon gave three Wagner concerts of excerpts from all operas from *Rienzi* to *Parsifal*. It was regarded as the greatest musical event since the Wagner festival given by Theodore Thomas with Anaterna, Scaria, and Winkelmann in 1884. The success attending the same programme given in Milwaukee resulted in a movement toward the establishment of a symphony orchestra in that city. The works performed at the annual Bach festival in Bethlehem under J. F. Wolle were the *Passion according to St. Matthew* and the *Mass in B minor*. In order to produce both works in their entirety, without undue fatigue to the audience, Mr. Wolle gave each work in two parts with an intermission of three hours. At the fifty-sixth annual music festival at Worcester, Mass., Pierné's *St. Francis of Assisi* had its first performance in America under the direction of Arthur Mees. While the musical ideas were not compelling, the work, nevertheless, created a favorable impression because of well-arranged contrasts and excellent orchestral tone-painting. But it marks no advance over the same composer's *Children's Crusade*. The memory of Verdi was honored by a superb performance of the master's *Requiem*. Strange to say, the only number by which Wagner was represented was the Prelude to *Tristan und Isolde*. Verdi's *Requiem* was the principal work produced at the Maine festival in Portland and Bangor, under the direction of William Chapman. At the North Shore festival at Evanstown, Ill., Handel's *Messiah* and Pierné's *Children's Crusade* were sung by a chorus of 1000 voices under P. C. Lutkin. The festival concluded with a Wagner concert by the Chicago Orchestra under Mr. Stock. For the Norfolk, Conn., festival E. S. Kelley had written a symphony in B minor, entitled *New England*. Under the composer's direction the work achieved a decided and well-merited success.

PRIZES. In order to encourage native composers the National Federation of Music Clubs has offered a prize of $10,000 for the best grand opera written by a native of the United States. A guarantee fund of $50,000 has been raised for the purpose of producing the successful work at Los Angeles during the time of the Panama Exposition of 1915. It is expressly stated that works founded on immoral plots, such as *Thais, Jewels of the Madonna, Cavalleria Rusticana*, etc., will not be considered.—The Italian Philharmonic Society of New York offered a prize of $10,000 for the best symphony by an Italian composer resident in the United States. The successful work is to have its first performance during the Panama Exposition. The judges are Puccini, Franchetti, Sgambati, Boito, and Perosi.

OPERA. At the Metropolitan Opera House of New York 164 performances were given from a repertoire of 43 operas by 22 composers. According to nationality these were divided as follows: German, fifteen works by six composers totaled fifty-four performances; Italian, twenty works by nine composers totaled seventy-seven performances; French, six works by five composers totaled twenty-two performances; Russian, one work totaled six performances; American, one work totaled five performances. Wagner, represented by nine works, led with thirty-four performances. Next in order came Puccini, of whom five works achieved twenty-six performances. Third ranked Verdi with six works and twenty performances. This in spite of the fact that the year marked the centenary of the master's birth. The works most frequently given were Puccini's *Madame Butterfly* and Offenbach's *Contes d'Hoffmann*, each nine times. Next came Mozart's *Zauberflöte* and Leoncavallo's *Pagliacci*, each eight times. Wagner's *Walküre* was given seven times. Verdi's *Aida*, Puccini's *Tosca* and *Bohème*, Mascagni's *Cavalleria*, Massenet's *Manon*, and Moussorgski's *Boris Godunoff* were each given six times. Gounod's *Faust* had one single performance. Three novelties were produced. Damrosch's *Cyrano de Bergerac* (February 27) with Alda and Amato in the principal rôles, under Hertz, was given in English. Of all the American operas presented so far it is in all respects the best. It lacks originality, its style is eclectic, but the composer shows himself a man of good taste, who takes pains to avoid the commonplace. The text by William J. Henderson is effectively constructed with due regard for variety and climaxes. Aside from the question of individuality, the music is natural, expressive, and really dramatic. The orchestration throughout shows the hand of a master. There can be no doubt that the work was received with decided favor. Moussorgski's *Boris Godunoff* (March 19) with Homer, Althouse, and Didur, under Toscanini, was sung in Italian. The text itself is not good. There is no character drawing; only "Boris" stands out as a real character, the other persons are mere figures. The element of love is reduced to a minimum. An atmosphere of unbroken gloom pervades the entire work. In spite of these handicaps the composer has succeeded through sheer power of genius in producing a work of overpowering grandeur. The themes, though little developed, are characteristic and possess inherent vitality. The music is of barbaric splendor and pulsates with seething passion. Much of the overwhelming effect produced is due to the superb orchestration by Rimski-Korsakoff. It may be said that the relation between principals and chorus has been completely inverted in this opera. The work made a profound and seemingly lasting impression. At any rate, it is unquestionably one of the very few valuable novelties, and one that possesses the qualities to insure it a permanent place in the repertoire. A novelty awaited with more than ordinary interest was Richard Strauss's *Der Rosenkavalier* (December 9). It was produced on a lavish scale with Hempel, Goritz, and Weil in the principal rôles under Hertz. The composer has fortunately abandoned the style of *Salome* and *Elektra* which, at any rate, would be impossible for a comedy. The text by von Hoffmansthal is far from ideal, the chief defect being excessive elaboration of episodes that often cause the real action to stand still. The music does not reveal any new side of Strauss's genius; it is exactly what one would expect from the composer of the great tone-poems. Like these latter, his opera contains passages of surpassing beauty magnificently sustained, but also portions where the inspiration lags perceptibly. In a general way it might be said that the composer has not been over-critical in the selection of his themes. By the side of some that show the master's inventive power at his best there are others hopelessly commonplace, yet made acceptable by an inexhaustible resourcefulness in harmonization and orchestration. Of the latter quality it is needless to speak. Long before this Strauss has been acknowledged as the wizard of the orchestra. On the whole, the work gave genuine pleasure, and was received with unqualified approval. In the acquisition of new singers the management has been unusually successful. In no previous year have there appeared as many new artists of such superlative qualities. Freida Hempel, the great German coloratura soprano, had made her début in the last days of 1912 and was plainly suffering from the effects of a recent illness. During the past year she gave evidence of her full and extraordinary powers. In Mme. Ober the public made the acquaintance of one of the greatest contraltos. With a powerful voice, lavish in intensity, she combines the highest qualities of the actress. Her début as "Ortrud" in *Lohengrin* was sufficient proof that her command of facial expression and dramatic gesture are unsurpassable. The superb singing and acting of Jacques Urlus recalled the days of Jean de Reszke. Since the latter's appearance no such interpreter of the great Wagner rôles has been heard. The impersonation of Wagner's baritone heroes by Carl Braun equals the finest by artists of former seasons. The work of Carl Schlegel, another baritone, also was excellent. The admirers of modern Italian opera found a new idol in the fine new tenor Giovanni Martinelli. Ever since his arrival in America Mr. Toscanini has been looked upon as an unsurpassable operatic conductor. During the year he proved that he is equally great on the concert platform. A special concert with the opera orchestra and chorus showed him to excellent advantage. The programme consisted of Wagner's *Faust Overture*, Strauss's *Till Eulenspriegels lustrge Streiche*, and Beethoven's *Ninth Symphony*. The concert had to be repeated. After many years of efficient service the concert master, Eugen Boegner, resigned. His place was filled by Gino Nastrucci of La Scala. Mr. Gatti-Casazza, the general director, reported the past year as the most successful in the history of the opera house. Among the artists were the established favorites Mmes. Fremstad, Gadski, Destinn, Farrar, Alda, Sparkes, Bori, Matzenauer, Homer, and Messrs. Caruso, Jörn, Cristalli, Martin, Althouse, Amato, Goritz, Griswold, Didur, Weil. The conductors were Toscanini, Hertz, Polacco.

The Boston Opera Company produced three novelties, none of which made a deep impression. Bizet's *Djamilek* (February 24) contained exquisite music, but lacked dramatic interest. Aubert's *Fôret Bleue* proved deficient in potent musical ideas and was entirely under the influence of Debussy. The apparent success of Février's *Monna Vanna* was due chiefly to the intense dramatic interest of the text. The music itself is insignificant; it never rises to the heights of the dramatic situation. Among the new singers Mmes. Edvina (soprano) and d'Alvarez (contralto), and Messrs. Muratore (tenor), Dangès, and Ludikar (baritones) were accepted as superb artists.

After the completion of the season of the Chicago Opera Company Andreas Dippel resigned his position as general director and was succeeded by Cleofonte Campanini, who inaugurated a new policy of giving performances in English (not necessarily English works) on Saturday nights. Of five new works, all conducted by Mr. Campanini, not one holds out a promise of maintaining itself. Erlanger's *Noël* (January 8) is lacking in melodic charm. The book of Zandonai's *Conchita* (February 3) is vulgar and filthy, and the music is on the level of those Italian operas that are yearly produced by the dozen in Italy. Kienzl's *Kuhreigen* (February 27) is melodious, but light and without real distinction. Massenet's *Don Quichotte* (November 15) is in the familiar style of that composer. It is melodious and pleasing, but without depth. Franchetti's *Cristoforo Colombo* (November 20) contains some beautiful melodies.

Owing to a large deficit and the withdrawal of its principal supporter, Colonel Meighan, the Montreal Opera Company was disbanded at the end of the third season. Its place was immediately taken by the National Opera Company of Canada with Max Rabinoff as general director. A season of eight weeks was given with a repertoire of fourteen Italian and French operas. Practically all the artists of the former company were engaged, and an arrangement for the exchange of artists was made with the operatic institutions of New York, Boston, and Chicago. Artistically the first season was a brilliant success, financially a failure.

With the highest expectations the new Western Metropolitan Opera Company began its first season of six weeks in San Francisco. Amidst scenes of the wildest enthusiasm Leoncavallo personally conducted the American première of his *Zingari* (October 30). But the undertaking ended in disaster.

In New York the efforts of the City Club for the establishment of opera at popular prices resulted in the organization of the Century Opera Company under the direction of Milton and Sargent Aborn. All works are performed in English, and each work is given an entire week on six evenings and two afternoons. Alfred Szendrei, formerly with the Chicago company, is the principal conductor. The singers are largely native Americans and artists of real ability. The prospectus announces a season extending over thirty-five weeks and promises besides works in the standard repertoire a complete cycle of all the Wagner operas, including *Parsifal*, in English. The opening performance was *Aida*. By the end of the year it seemed that the public would support the new venture. Some very excellent performances were given, notably of *Aida*, *Louise*, and *The Jewels of the Madonna*. The only Wagner opera heard so far was *Lohengrin*, which received a rendering that could scarcely be called adequate.

Europe. Throughout the German Empire the centennial of the birth of Wagner was observed with impressive ceremonies. In Munich the celebration lasted almost two weeks, and concluded with the unveiling of a new statue in front of the Prinzregententheater. In Dresden court-conductor Schuch performed the master's *Liebesmahl der Apostel* in the Liebfrauenkirche, the same place where Wagner conducted the first performance in 1843. The festival spirit seems to have run riot, for in Berlin the Wagner celebration was followed by a three-day Bach-Beethoven-Brahms festival, and this immediately by a four-day Beethoven festival. The forty-eighth annual festival of the Allyemeiner deutscher Musikerverband at Jena brought out only one work of importance, Reger's *Römischer Triumphgesang*, op. 126, for male chorus and orchestra. The same composer's *Böcklin Suite*, op. 128, had its first performance at Essen, where it was received with enthusiasm. Gustav Mahler's posthumous *Ninth Symphony* was played under Fried in Berlin. The general verdict was that this symphony denoted a decided falling off against its predecessors. At Dresden D'Albert won a gratifying success with a new opera, *Liebesketten*. The first performance in Germany of Moussorgski's *Boris Godunoff* took place in Berlin, and was a marked success. Wolf-Ferrari's latest opera *L'Amore Medico* was brilliantly successful at Dresden. At its German première in Berlin, with the composer present, Puccini's *Girl of the Golden West* drew an enormous house, but succeeding performances were given before small audiences.—In the spring a new opera house, the Théâtre des Champs Elysées, was opened in Paris by Gabriel Astruc. The opening opera was Berlioz's *Benvenuto Cellini*, under the direction of Weingartner. The work had not been heard in Paris since 1838. Mr. Astruc presented an array of exceptionally fine artists, and spared no expense in the mounting of the works. The first novelty produced was De Lara's *Les Trois Masques*, which met with emphatic success. But as early as November the new house had to be closed, since opera in France without municipal subvention is an impossibility. At the Grand Opéra the friction between the two directors, Messager and Broussan, resulted in open quarrel, so that the former resigned. But he was at last persuaded to serve out his term, which ends January 1, 1915. After that time there will be only one director. *Panurge*, a posthumous opera of Massenet, was produced with great success. Charpentier's *Julien*, a sequel to *Louise*, was at last produced, and proved a severe disappointment. At the Salle Gaveau the veteran Saint-Saens gave his last concert before retiring from all concert work. He appeared both as organist and pianist. For the first time in the history of the conservatory the much-coveted *Grand Prix de Rome* was won by a woman, with a lyric episode *Helena and Faust*. Lili Boulanger, a sister of Nadia Boulanger, is the daughter of a former professor at the conservatory, who won the prize in 1835.

BIBLIOGRAPHY. Among the important books published during the year are the following:

Biographical. A. Boschot, *La Crépuscule d'un romantique, H. Berlioz* (Paris), enthusiastic rather than critical, but reliable as to facts; A. Pirro, *Dietrich Buxtehude* (Paris), exhaustive and authoritative, the best biography published so far; D. Chennevière, *Claude Debussy et son œuvre* (Paris); G. Samazeuilh, *Un musicien français: P. Dukas* (Paris); H. Dessauer, *John Field: Sein Leben und seine Werke* (Langensalza); L. Borgex, *Vincent d'Indy, sa vie et son œuvre* (Paris); C. L. Kellogg, *Memoirs of an American Prima Donna* (New York); Lilli Lehmann, *Mein Weg* (Leipzig), very comprehensive and a valuable contribution to the history of Wagner's art; L. Schmidt, *Mozart* (Berlin), brief but authoritative, uniform with the other volumes of *Berühmte Musiker;* V. Thompson, *The Life of Ethelbert Nevin* (Boston), rather personal reminiscences than a real biography; B. Litzmann, *Clara Schumann: An artist's life* (2 vols., Leipzig), translated and abridged from the fourth German edition by G. E. Hadow, very full, contains many letters and extracts from diaries; A. Pirro, *Schütz* (Paris), comprehensive and scholarly, the standard biography; R. Batka, *Richard Wagner* (Berlin), the latest addition to *Berühmte Musiker*, excellent, brief, appreciative; G. Schjelderup, *Richard Wagner und seine Werke* (Leipzig), one of the best and most comprehensive biographies written, embodying the results of latest researches.

History of Music. H. Botstiber, *Geschichte der Ouvertüre und der freien Orchesterformen* (Leipzig), exhaustive and scholarly treatment of all forms of overtures from the very beginnings; E. Clements, *Introduction to the Study of Indian (Hindu) Music* (London), explains the interpretation of the older music in modern times; J. Combarieu, *Histoire de la musique des origines jusqu' à la mort de Beethoven* (Paris), vol. i. goes to the end of the sixteenth century, detailed, result of original research, at end of each chapter a judiciously chosen bibliographical list having reference to the period treated; A. Friedenthal, *Musik Tanz und Dichtung bei den Kreolen Amerikas* (Berlin), contains numerous illustrations in notation, treats Mexico, Central America, West Indies, Cordilleras, Chile, the La Plata states and Brazil; W. Niemann, *Die Musik seit Richard Wagner* (Berlin), characterizes in broad outlines general tendencies, treats all nations, emphasizes folk music and national elements; H. Riemann, *Handbuch der Musikgeschichte*, vol. ii., part 3 (Leipzig), treats eighteenth and nineteenth centuries; G. Schünemann, *Geschichte des Dirigierens* (Leipzig), from the earliest times, very full, scholarly and accurate; J. Wolf, *Handbuch der Notationskunde*, vol. i. (Leipzig), treats exhaustively all systems, ancient and modern Greek, mediæval, old Russian, Neumes, and beginnings of mensurable music, throws new light on disputed points of Byzantine notation.

Instruments. Theory. W. H. Clarke, *Standard Organ Building* (Boston); A. Jacquot, *La lutherie lorraine et française depuis les origines jusqu' à nos jours* (Paris); R. Lenormand, *Etude sur l'harmonie moderne* (Paris), very valuable, examines works of Debussy, Ravel, Dukas, D'Indy, Chausson, etc., gives examples, attempts to formulate laws from them, not dogmatic, rather tentative, shows that modern development does not affect validity of established fundamental laws.

Acoustics. Criticism. H. Berlioz, *A Critical Study of Beethoven's Nine Symphonies*, translated by E. Evans (London); E. J. Dent, *Mozart's Operas; a Critical Study* (New York), valuable, gives full history of each opera. E. S. Kelley, *Chopin the composer* (New York), contains not only masterly technical analyses of chief works, but also genuine appreciation; G. Révész, *Zur Grundlegung der Tonpsychologie* (Leipzig), strictly scientific, based on actual experiments.

Correspondence. J. Joachim and A. Moser, *Briefe von und an Josef Joachim*, vol. iii. (Berlin), contains the letters from 1869-1907; C. S. Benedict, *Richard Wagner in seinen Briefen* (Leipzig), a selection of important letters from 1832-1883, carefully chosen to give a complete picture of Wagner's artistic development. Letters arranged in six groups, each group preceded by a brief biographical and critical introduction.

Miscellaneous. G. Nottebohm, *Thematisches Verzeichniss der Werke Beethovens* (Leipzig), a reprint of the original very valuable catalogue, augmented by a bibliotheca Beethoveniana, a complete record of all books and articles (newspaper and periodical) written about Beethoven from 1827-1913; Th. v. Frimmel, *Beethoven Forschung*, vol. iv. (Vienna); A. Schering, *Bach Jahrbuch*, vol. ix. (Leipzig); L. Frankenstein, *Wagner Jahrbuch*, vol. v. (Berlin); R. Schwartz, *Jahrbuch der Musikbibliothek Peters*, vol. xix. (Leipzig).

MYLIUS, Edward T. See Immigration and Emigration.

NASH, Paul Cleveland Bennett. An American public official, died January 7, 1913. He was born in Geneva, N. Y., in 1877, and educated at Hobart College, the Massachusetts Institute of Technology, and at Paris and Rome. He entered the diplomatic service and in 1903-04 was secretary of the American legation and consul-general at Bankok, Siam. In 1904-07 he was consul at Venice, and in 1907-08 at Vladivostock, Russia. He was appointed consul-general at Rheims, France, in 1908, serving in that position for two months, when he was appointed consul-general at Budapest. He held this position at the time of his death.

NASHVILLE, First National Conservation Exposition at. See Expositions.

NATAL. One of the four original provinces of the Union of South Africa (q.v.). Of the total population, census of 1911 (1,194,043), 49.15 per cent. were born in the colony. Pietemaritzburg, the seat of the provincial government, had (1911) 69,187 inhabitants (with suburbs, 89,998); Pietermaritzburg, 30,555; Ladysmith, 5595; Greytown, 2344. During the year three railway lines 68 miles in length were opened and important reconstruction and improvement work was in progress. This involved the boring of the Stockton tunnel, the longest in South Africa. This is 857 yards in length and is discussed elsewhere in the Year Book. (See Tunnels.) Administrator (1913), C. J. Smythe. See South Africa, Union of, for area, population, etc.

NATIONAL ACADEMY, Exhibitions of. See Painting and Sculpture.

NATIONAL ASSOCIATION OF STATE LIBRARIES. See Library Association, American.

NATIONAL BANKS. The following article contains only statistics of resources, liabilities, circulation, earnings, distribution of shares, and savings deposits of national banks. An account of the banking and currency (Owen-Glass) law passed in December will be found under Banks and Banking. See also Financial Review; and Trusts, *Money Trust*.

Statistics. According to the report of the Comptroller of the Currency there were in the United States on August 9, 7488 national banks with total resources of $10,876,852,000. Their loans and discounts amounted to $6,168,555,000; United States bonds, $790,023,000, or 80 per cent. bonded debt of the country; other bonds and securities, $1,040,422,000; gold coin and treasury certificates, $478,438,000; total specie, $728,267,000; legal tender notes, $170,902,000; and 5 per cent. redemption fund, $35,596,000.

The principal items of liabilities were as follows: Capital stock, $1,056,345,000; surplus, $725,333,000; undivided profits, $259,549,000; notes outstanding, $724,459,000; individual deposits, $5,761,338,000.

Of the loans and discounts 9.8% were made on demand paper having one or more firm names; 16% on demand secured by stocks and bonds; 33.1% on time paper with two or more firm names; 20.5% on single name paper; and 20.6% on time secured by stocks and bonds, mortgages, or other real estate security. New York City banks alone made 14.4% of all loans and discounts; Chicago and St. Louis made 7%; other reserve cities 26.7%; and country banks 51.9%. The income from all investments in loans, discounts, bonds and other securities was $499,252,000, or 6.19% on the total investment. The highest percentage on such investments was made by banks in the Western Division, 8.33%, and the lowest by those in the Eastern States, 5.62%. The rate in the New England States was 5.88%. This average income is notable when the great amount of United States bonds included is considered. From the gross earnings were deducted expenses and taxes of $284,515,000; and losses and premiums of $53,756,000. Net earnings amounted to $160,980,000, or 9.06% on capital and surplus. There were paid dividends amounting to $119,906,000, or at the rate of 11.4% on capital. The dividend rate varied from 7.4% in Hawaii and 8.6% in the New England States, to 11.6% in the Eastern States, and to 15.8% in the Western States.

A table showing the number of share holders and average number of shares held by each on July 7, showed that the 7490 banks having $1,056,229,000 capital stock on that date had 432,920 share holders, with an average of 24.4 one-hundred-dollar shares each. In New England there were 453 banks with $101,636,700 capital, having 50,819 share holders with 20 shares each. In the Eastern States there were 158,385 share holders with 21.2 shares each; in the Southern States 80,307 share holders with 21.6 shares each; in the Middle Western States, 96,516 share holders with 29.4 shares each; in the Western States, 24,548 share holders with 29.5 shares each; and in the Pacific States, 22,238 share holders with 39.4 shares each.

Over 93% of the United States bonds held were to secure circulation. The notes outstanding amounted to about 70% of the paid-in capital stock. Not more than 2.5% of these notes were secured by lawful money. This circulation was composed almost entirely of five, ten, and twenty dollar notes. There were outstanding, however, a few one and two-dollar notes, a considerable number of fifty and one hundred-dollar notes, and a few five-hundred and one-thousand-dollar notes. There were presented for redemption for the year ending October, 1913, $683,431,000, of which nearly one-half came from New York. The expenses of national banks in connection with their circulation amounted to $4,377,945, of which the semi-annual tax on circulation was $3,804,762, and the cost of note redemption $517,842. The comptroller pointed out that the taxes paid by national banks on capital and on circulation from the organization of the system amounted to $198,188,000, not including $4,951,000 paid under the corporation tax. In contrast to this the total expenses of the Currency Bureau during the same period totaled only $14,736,000. About 45% of the national banks have established savings departments. These reported on August 9, 3,020,831 depositors, with total deposits of $820,639,000, or $205.50 per depositor. (See also Banks and Banking, and Financial Review.)

NATIONAL PARKS. See Public Lands.

NATIONAL PEACE CONFERENCE. See Arbitration, International.

NAVAL AERONAUTICS. See Aeronautics.

"NAVAL HOLIDAY." See Great Britain, *Navy*.

NAVAL MILITIA. See Militia; and United States, *Navy*.

NAVAL PROGRESS. Progress in naval affairs during 1913 will be found summarized in the following paragraphs dealing with the navies of the great powers, in the accompanying official tables showing relative strength and tonnage, and in a general section dealing with aviation as practiced during the year in connection with the great war fleets.

Relative Order of Warship Tonnage, 1913
Compiled by Office of Naval Intelligence, U. S. Navy Department

Tonnage Completed		As Would Be the Case if Vessels Building Were Completed	
Nation	Tonnage	Nation	Tonnage
Great Britain	2,072,711	Great Britain	2,611,291
Germany	943,338	Germany	1,228,208
United States	760,002	United States	921,844
France	645,891	France	876,155
Japan	497,199	Japan	702,099
Russia	283,681	Russia	685,378
Italy	259,136	Italy	452,089
Austria	198,351	Austria	258,740

Austria. *New Construction.* At the 1914 session, the delegations were to be asked to vote the first credit for the second dreadnought division to replace four obsolete vessels in the Austrian navy; cost, about $13,600,000; displacement, 25,000 tons; principal armament, ten 14-inch guns; speed, 23 knots. The fourth dreadnought, *Szentistvan*, was to be launched in January, 1914. Of the six destroyers building at Fiume, three were launched, and three were undergoing trials. Characteristics: Displacement, 800 tons; speed, 32 knots; armament, two 102 mm., six 37 mm. guns; and two torpedo tubes.

England. *New Construction.* Four capital ships, commissioned in the last two months of 1912 (*King George V.*, *Conqueror*, *Princess Royal*, and *New Zealand*), were not ready for service until early in 1913. Including the battle cruiser *Australia*, five capital ships were commissioned in 1913: *Centurion, Australia, Queen Mary, Audacious, Ajax.* Five capital ships were launched: *Queen Elizabeth, Benbow, Warspite, Emperor of India, Tiger.* The *Dublin* and the Australian cruisers *Melbourne* and *Sydney*, were the only protected cruisers completed. The *Southampton*, put down as completed in 1912, was not commissioned until February 25, 1913. The only protected cruisers launched were: *Birmingham, Nottingham,* and *Lowestoft.* Two light armored cruisers of a new type were launched, the *Aurora* and the *Arethusa.* The displacement of the first group of light armored cruisers was 3600 tons; of the second, 3740; IHP of first group, 37,000; of second, 40,000; estimated speed of both groups, 30 knots; turbines; armor belt 3-inch; fuel capacity, 750 tons, oil only; four submerged 21-inch tubes; armament: two 6-inch Q.; six 4-inch Q.; four machine guns.

Twenty-six destroyers were launched in 1913; and twenty held their trials. The 16 destroyers of the 1913-14 programme had the following characteristics: Displacement, 1200 to 1350 tons; IHP, 27,000-28,500; speed, 34-35 knots; armament, four 4-inch Q., and four 21-inch torpedo tubes. Oil capacity, 210 tons. Complement, 120. The six submarines of the F class, 1913 programme, had a surface displacement of 950 tons, and a submerged displacement of 1200 tons; surface speed, 20 knots; submerged speed, 12 knots; six 21-inch torpedo tubes; two (or four) quick firing guns, and radiotelegraphy.

Supplementary Entries of Officers. It was found necessary to enter upward of 50 lieutenants and sub-lieutenants from the Royal Naval Reserve; also to have a special entry of 40 cadets of about eighteen years of age who had completed their general education in the public schools.

France. *Administration and Organization.* In December, M. Baudin was succeeded by Senator Monis as minister of marine. According to M. Baudin's plan, the French fleet would consist of 38 battleships, 6 armored cruisers, and 10 protected cruisers in 1918. Reforms were carried out in administration and personnel. Among these reforms were the creation of military directors, and of an admiralty council, improvements in the ordnance service from a technical point of view, an enlistment law, a systematic effort to increase enlistments by making the navy better known throughout the country, increased admissions to the Naval School, a law to increase the pay of officers and petty officers, introduced July 1, and a law organizing the corps of line officers, petty officers, and enlisted men.

New Construction. The 1914 budget provided for 50 battleships, 3 scouts, 5 torpedo boats, 24 submarines, and other small craft. Sixteen new vessels were to be commissioned in 1914: the battleships *France* and *Paris;* two 30-knot torpedo boats and 12 submarines, 8 of 410 tons and 3 of 520, and one, *Gustave Zédé* of 797 tons and a speed of 20 knots. The battleships under construction are the *Bretagne* and *Provence*, the *Lorraine, Flandre, Gascogne, Languedoc,* and *Normandie.* Ten ships were to be laid down in 1914, the most important being the battleship *Bearn* (25,200 tons) of the *Normandie* type. The 1912 programme provided for two battleships to be laid down in the latter half of 1914. The recent naval manœuvres having shown the imperative need of squadron scouts, three scouts were to be laid down before the second battleship of the 1912 programme, and the date of the first (the *Bearn*) was put forward from July to January. Five submarines of 833 tons and speed of 20 knots were also to be laid down. The mine layer *Pluton* was launched on March 10; her sister ship, the *Cerbère*, is nearly completed: displacement, 566 tons; IHP, 6000; speed 20 knots; armament one 3-inch gun. They are fitted to carry 120 mines.

Powder. Ships of the navy only carried new powder for the big guns. The old powder which had caused so many accidents was still used for guns of smaller calibre, and for the reserve stock on land. Only one-half of the powder required during 1914 could be made with the staff actually employed.

Germany. *New Construction.* Five capital ships were launched in 1913 (*König, Gross Kurfürst, Markgraf, Lützow,* and *Derfflinger*); and four were commissioned (*König Albert, Prinzreg Luitpold, Kaiserin,* and *Seydlitz*). The protected cruiser *Graudenz* (5530 tons) was launched; and the protected cruisers *Karlsruhe* and *Rostok* (4900 tons) completed. The 1914 budget provides for 12 more torpedo-boats. There are 27 submarines completed and several building, one of them at the Fiat San Giorgio Works, Spezia; and the 1914 budget provided 19 million marks for submarine construction. All the new protected cruisers have a four-inch armor belt; and a designed speed of not less than 27 knots. It was reported that those of the current programme had a main battery of improved 5.9-inch guns, and a coal capacity of about 1500 tons. The displacement of the latest submarines averaged about 800 tons, with a surface speed of 16 knots; but the one building in Italy was considerably smaller, with a speed of about 18 knots. The twelve destroyers of the 1912 programme (S13-S24) were completed; 12 more were building. The standard contract speed seemed to be fixed at 32.5 knots. Six torpedo tubes and two 3.4-inch guns were expected to represent the new armament.

Italy. *New Construction.* Four battleships were authorized in 1913. Characteristics (Major-General Ferrati's plans): Displacement, 28,000 tons; length, 184.24 m.; speed, 24 knots; armament, eight 15-inch guns in 4 axial turrets; twenty 15 cm., and twenty 75 mm. guns, the former in casemates; 4 machine guns; armor belt, 320 mm. Turbines, with motor of 12,000 H. P., to drive the middle propeller. Fuel—oil only. Two of these are to be laid down early in 1914. The *Andrea-Doria* and *Caio-Duilio* (22,340 tons each) were launched in 1913. The protected cruisers *N* and *Mirabello* (5000 tons each) were to be commenced early in 1914. The protected cruisers *Basilicata* and *Campania* (2500 tons each), for foreign service, were commenced in the summer of 1913. The scouts *Nino Bixio* and *Marsala* (3400 tons, six 4.7-inch guns, six 3-inch guns; 3 above water torpedo tubes, Curtis turbines, designed H. P. 22,500, estimated speed 29 knots) have been commissioned. The ten 630-ton 30 knot destroyers of the *Impavido* class are all complete, or nearly so, and 15 larger and faster vessels are in hand. Four types of submarines were built or building: (1) 8 building of the *Zoea* 12,000 H. P., to drive the middle propeller. type (displacement, 250-300 tons; speed, 13-8.5 knots); (2) 2 of *Ferraris* type (displacement, 345-400 tons; speed, 15-9 knots; (3) 2 of *Nautilus* type (displacement, 225-320 tons; speed, 15-7 knots); (4) the *Atropo* (displacement, 230-320 tons; speed, 12.5 knots).

Japan. *Building Programme.* The vice-minister of marine stated that the Japanese programme was elaborated with a view to possible conflict with an enemy whose strength consists of 21 battleships and armored cruisers. Financial reasons made it impossible to adopt this plan during the year.

Dry Dock. The new dry dock, completed at Sasebo, has a length on the blocks of 777 feet, a width of 111 feet, and a depth over the sill of 38 feet.

New Construction. The battleship *Fuso* was the only one of the four of her class launched. The battle cruiser *Kongo*, built in England, arrived in Japan. The *Haruna* and *Kirishima* were launched; both were to be finished in 1915. The *Hiyei* was to be finished at the end of 1914; but her construction had been considerably delayed. The destroyers *Sakura* and *Tachibana*, of 790 tons, were completed. Two of about 1000 tons have been ordered from Yarrow, Glasgow. Two of the 490-tons *Laubeuf* type are building at the Creusot Works, France. Guns for the new battleships were being made at the Japan Steel Foundry at Muroran; breech blocks and other secret parts at the Kure Naval Station.

Russia. *New Construction.* The four battleships of the *Sebastopol* class (23,000 tons) were not to be completed until the end of 1914. The three battleships of the *Emperor Alexander III.* class (23,000 tons) were laid down at Nicolaiff in 1913; the *Imperatritsa* was launched on November 1. Four battle cruisers of the *Borodino* class (32,500 tons) were laid down in the Baltic. Two light cruisers of 4300 tons, and six of 7000 tons were building. Nine destroyers of 1100 tons displacement were launched in 1912-13; 36 were building, 12 of them to be delivered yearly in 1914, 1915, and 1916. Three Holland submarines were launched in 1913; also three of *Bubnov* type (460-610 tons); 1 (500 tons) *Bubnov* type, presented by public subscription. One submarine mine layer, the *Krab* (500-700 tons) was launched.

Turkey. Turkey during 1913 bought the Brazilian battleship *Rio de Janeiro*, which was to be completed in 1914. The battleship *Resdahieh* was launched on September 3, 1913. An important event was the agreement between Turkey and Armstrong-Vickers group: The agreement was for thirty years. The company was to construct and repair war and merchant vessels. Interest on $6,534,000 was guaranteed by the government. The company was to have a monopoly for all naval construction and repairs which could be done at Ismid or in the Golden Horn; take over and reorganize the naval construction and repair plant; construct a floating dock to hold a vessel of 32,000 tons. For first fifteen years 50 per cent. of the workmen were to be Ottoman subjects. Apparently after that time all workmen will be native, the company being a training school. Foreign officials and workmen were to be British. Dock charges for naval vessels were to be a specified per cent. less than for merchant ships. Profit on naval work for the company will be 10 per cent. Plant will pass into the hands of the Turkish government after thirty years.

United States. *New Construction.* The battleships *New York* and *Texas* were to be completed in the spring of 1914. Battleship *No. 39* was commenced; and the battleships *Nevada, Oklahoma,* and *Pennsylvania* were building. The *Monocacy* and *Palos*, river gunboats, were building at Mare Island; also the fuel ships *Kanawha* and *Maumee*. The *Jupiter* (19,360 tons) was a collier of new type, driven by electric motors, power for which was generated by turbine driven dynamos.

Armor. The *Pennsylvania* was to carry almost 8000 tons of armor. All armor must be cemented to avoid the tendency of non-cemented armor to spall.

Dry Dock. On February 17, 1913, the huge cofferdam structure of the new graving dock at Pearl Harbor was wrecked by underground pressure. The Secretary of the Navy laid the facts before Congress for advice.

Education. On January 1, 1914, schools were to be established for the instruction of enlisted men, petty officers, and warrant officers serving on board ships.

Radio. Twenty-three stations had been established, and experiments were in progress to determine the difference in longitude between Radio, Va., and Paris (Eiffel Tower) by radiotelegraphy, and to determine the velocity of propagation of Hertzian waves.

Recommendations. The Secretary of the Navy recommended: (a) the construction of 2 dreadnoughts, 8 destroyers, 3 submarines; (b) legislation to enable the department to refine its own oil from its own wells; (c) the establishment of a government armor plant. See UNITED STATES under *Navy Department*.

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AVIATION

By 1913 the navies of all the leading naval powers had become vitally interested in aviation and the problems of offense and defense connected with the navigation of the air. Not only questions of material but also of organization were receiving careful consideration.

FRANCE. In the French navy one of the most pressing problems was the organization of the naval air service. The aëroplane parent ship, the *Foudre*, fitted with a hangar on the upper deck, spent during the year 1913 much time in port having changes made in her aëronautical apparatus. A sum of £1,200,000 was to be devoted to four airship and five aviation stations. Three dirigibles were to be allotted to each station, and five aeroplanes to each aviation centre.

GERMANY. Seventeen naval air stations were being established to employ 50 hydro-aeroplanes. In December a new type of hydro-aeroplane, a Rumpler biplane, driven by a 100-h.p. Mercedes motor, was tested and accepted. The navy was to have two airship squadrons, four dirigibles in each. The Germans retained faith in the dirigible balloon, notwithstanding the loss of *L. I.* and *L. II.* *L. I.* was lost at sea under what might be termed service conditions. *L. II.* was burned on October 17 while on her acceptance trials at Johannesthal. With the destruction of these two Zeppelins, almost the entire airship personnel was wiped out. (See AERONAUTICS.) *L. II.* differed from previous Zeppelins in two principal points: The cars were placed close under the gas bag, and the forward car containing the engines was fitted with a large hooded wind screen. It is believed that the airship, in rising, gave off a large amount of gas which, owing to the wind screen, accumulated in the forward car, forming a highly-explosive mixture which was ignited by a spark from the motor.

ENGLAND. Air craft took part in British naval manœuvres in 1913 for the first time. There was a naval aerodrome at Eastchurch (Naval Flying School) and naval air stations were located at Grain Island, Calshot, Yarmouth, Felixstowe, Cromarty, and Leven. The headquarters of the naval wing were transferred from the *Hermes* to the naval sub-depot, Sheerness.

AUSTRIA. An experimental station was established on St. Katharina Island off Pola. In 1913 the best hydro-aeroplane owned by the Austrian navy was a small one built at the Pola arsenal, and driven by a 35 h.p. Daimler motor. The Austro-Hungarian colony in Bavaria, and the Vienna Navy League presented to the navy two hydro-aeroplanes, purchased by public subscription.

JAPAN. Curtis aeroplanes were used as scouts in the autumn manœuvres of the Japanese navy.

UNITED STATES. At the end of 1913 Pensacola was about to become the principal aviation centre, with the battleship *Mississippi* as parent ship. A larger and more seaworthy type of flying boat for use on land or water was developed, using a Sperry gyroscopic automatic stabilizer. Three more Curtiss flying boats were to be delivered to the fleet. See AERONAUTICS; BATTLESHIPS.

SEA STRENGTH OF THE GREAT POWERS, DECEMBER 1, 1913

Comparative Tables Compiled by the Office of Naval Intelligence, U. S. Navy Department*

TABLE I.—VESSELS BUILT

	Battleships, Dreadnought type (a)	Battleships (b)	Battle cruisers (c)	Armored cruisers	Cruisers (d)	Destroyers	Torpedo boats	Submarines	Coast defense vessels (e)
England	18	40	9	34	72 (k)	143 (k)	49	72	0
Germany	13	20	4	9	40	130	0	24	2
United States..	7	24	0	11	14	46	18	25	4
France	2	18	0	20	10	81	139	75	1
Japan	2	13	1	13	14	54	28	13	2
Russia	0	8	0	6	9	93	14	30	2
Italy	2	8	0	9	7	28	68	19	0
Austria	2	6	0	2	5	15	36	6	6

TABLE II.—VESSELS BUILDING OR AUTHORIZED

	Battleships, Dread-nought type	Battle cruisers	Cruisers	Destroyers	Torpedo boats	Submarines
England (*f*)	14	1 (*k*)	20 (*k*)	44 (*k*)	0	22 (*k*)
Germany (*g*)	6	3	4	12	0	12 (*i*)
United States	5	0	0	16	0	26
France	9	0	0	5	0	18
Japan (*h*)	4	3	0	2	0	2
Russia (*l*)	7	4	8	45	0	25
Italy	7	0	3	19	2	0
Austria	2	0	2	8	27	8

* Published by permission.

(*a*) Battleships having a main battery of all big guns (11 inches or more in calibre).

(*b*) Battleships of (about) 10,000 tons or more displacement, and having more than one calibre in the main battery.

(*c*) Armored cruisers having guns of largest calibre in main battery and capable of taking their place in line of battle with the battleships. They have an increase of speed at the expense of carrying fewer guns in main battery, and a decrease in armor protection.

(*d*) Includes all unarmored cruising vessels above 1500 tons displacement.

(*e*) Includes smaller battleships and monitors. No more vessels of this class are being proposed or built by the great powers.

(*f*) England has no continuing shipbuilding policy, but usually lays down each year 4 or 5 armored ships with a proportional number of smaller vessels.

(*g*) Germany has a continuing shipbuilding programme, governed by a fleet law authorized by the Reichstag. For 1913 there were authorized 2 battleships, 1 battle cruiser, 2 cruisers, 12 destroyers. Eventual strength to consist of 41 battleships, 20 armored cruisers, 40 cruisers, 144 destroyers, 72 submarines.

(*h*) $78,837,569 authorized to be expended from 1911 to 1917 for the construction of war vessels.

(*i*) $4,760,000 authorized for experiments and further construction.

(*k*) Includes vessels of colonies.

(*l*) Russian shipbuilding programme provides for the completion by 1918 of 4 battle cruisers, 8 small cruisers, 36 destroyers, and 18 submarines.

Note.—Vessels undergoing trials are considered as completed.

The following vessels are not included in the tables: Ships over twenty years old from date of launch, unless they have been reconstructed and re-armed within five years; torpedo craft over fifteen years old; transports, colliers, repair ships, converted merchant vessels, or any other auxiliaries; vessels of less than 1500 tons, except torpedo craft; torpedo craft of less than 50 tons.

Table II. includes vessels authorized but not yet laid down, as well as those actually under construction.

WARSHIP TONNAGE OF THE PRINCIPAL NAVAL POWERS, 1913

Number and Displacement of Warships, Built and Building, of 1500 or More Tons, and of Torpedo Craft of More Than 50 Tons

Compiled by the Office of Naval Intelligence, U. S. Navy Department*

Type of Vessel	GREAT BRITAIN				GERMANY				UNITED STATES			
	Built		Building		Built		Building		Built		Building	
	No.	Tons	No.	Tons (est.)	No.	Tons	No.	Tons (est.)	No.	Tons	No.	Tons (est.)
Battleships *a* (dreadnought type)	18	373,350	14	367,500	13	285,670	6	162,300	7	162,650	5	144,800
Battleships *b* (predreadnought)	40	589,385	..	....	20	242,800	..	......	24	335,284	..	......
Coast-defense vessels *c*	..	....	..	....	2	8,168	..	......	4	12,900	..	......
Battle cruisers *d*	9	187,800	1	28,500	4	88,974	3	84,000	..	......	..	......
Armored cruisers	34	406,800	..	....	9	94,245	..	......	11	149,295	..	......
Cruisers *e*	72	371,715	20	79,320	40	145,847	4	21,886	14	66,410	..	......
Torpedo-boat destroyers	143	104,985	44	42,865	130	67,094	12	7,200	46	29,862	16	17,042
Torpedo boats	49	11,488	..	....	..	......	..	......	18	3,601	..	......
Submarines	72	27,188	22	20,395	24	10,540	12	9,484	25	......	*g*26	......
Total tons built and total tons building	..	2,072,711	..	538,580	..	943,338	..	284,870	..	760,002	..	161,842
Total tons built and building		2,611,291				1,228,208				921,844		

Type of Vessel	FRANCE				JAPAN				RUSSIA			
	Built		Building		Built		Building		Built		Building	
	No.	Tons	No.	Tons (est.)	No.	Tons	No.	Tons (est.)	No.	Tons	No.	Tons (est.)
Battleships *a* (dreadnought type)	2	46,184	9	214,100	2	41,600	4	120,000	..	......	7	159,305
Battleships *b* (predreadnought)	18	262,675	..	....	13	191,380	..	......	8	112,050	..	......
Coast-defense vessels *c*	1	8,800	..	....	2	9,086	..	......	2	10,380	..	......
Battle cruisers *d*	..	....	..	....	1	27,500	3	82,500	..	......	4	128,000
Armored cruisers	20	201,724	..	....	13	138,483	..	......	6	63,500	..	......
Cruisers *e*	10	49,978	..	....	14	60,995	..	......	9	52,845	8	45,000
Torpedo-boat destroyers	81	34,386	5	3,974	54	22,356	2	1,200	93	36,145	45	54,810
Torpedo boats	139	13,920	..	....	28	3,127	..	......	14	2,132	..	......
Submarines	75	28,224	18	12,190	13	2,672	2	1,200	30	6,629	25	14,577
Total tons built and total tons building	..	645,891	..	230,264	..	497,199	..	204,900	..	283,681	..	401,692
Total tons built and building		876,155				702,099				685,373		

Type of Vessel	ITALY				AUSTRIA			
	Built		Building		Built		Building	
	No.	Tons	No.	Tons (est.)	No.	Tons	No.	Tons (est.)
Battleships [a] (dreadnought type)	2	40,940	7	172,760	2	40,020	2	40,020
Battleships [b] (predreadnought)	8	96,100	..	......	6	74,613	..	......
Coast-defense vessels [c]	..	......	..	......	6	41,700	..	......
Battle cruisers [d]	..	......	..	......	..	......	..	......
Armored cruisers	9	74,020	..	......	2	13,380	..	......
Cruisers [e]	7	20,030	3	6,223	5	13,815	2	6,966
Torpedo-boat destroyers	28	10,987	19	13,730	15	7,089	3	2,361
Torpedo boats	68	11,584	2	240	36	6,048	27	6,642
Submarines	19	5,475	..	......	6	1,686	3	4,400
Total tons built and total tons building	..	259,136	..	192,953	..	198,351	..	60,389
Total tons built and building		452,089				258,740		

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* Published by permission.

[a] Battleships having a main battery of all big guns (11 inches or more in calibre).

[b] Battleships of (about) 10,000 or more tons displacement, whose main batteries are of more than one calibre.

[c] Includes smaller battleships and monitors.

[d] Armored cruisers having guns of largest calibre in main battery and capable of taking their place in line of battle with the battleships. They have an increase of speed at the expense of carrying fewer guns in main battery and a decrease in armor protection.

[e] All unarmored warships of more than 1500 tons are classed as cruisers. Scouts are considered as cruisers in which battery and protection have been sacrificed to secure extreme speed. The word "protected" has been omitted because all cruisers except the smallest and oldest now have protective decks.

[f] Colonial vessels included.

[g] Includes 4 submarines authorized in 1913, contracts for which will not be awarded until latter part of December, 1913.

The following vessels are not included in the tables: Ships over twenty years old from date of launch, unless they have been reconstructed and re-armed within five years; torpedo craft over fifteen years old; those not actually begun or ordered, although authorized; transports, colliers, repair ships, torpedo depot ships, or other auxiliaries; vessels of less than 1500 tons, except torpedo craft; torpedo craft of less than 50 tons. Vessels undergoing trials are considered as completed.

NAVAL RESERVE. See MILITIA.

NAVY. See BATTLESHIPS, NAVAL PROGRESS, and various countries under *Navy.*

NEBRASKA. POPULATION. The population of the State in 1910 was 1,192,214. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 1,233,122.

AGRICULTURE. The area, production, and value of the principal crops in 1912-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	7,610,000	114,150,000	$74,198,000
	1912	7,609,000	182,616,000	67,568,000
Wheat	1913	3,475,000	62,325,000	44,251,000
	1912	3,123,000	55,052,000	37,985,000
Oats	1913	2,250,000	59,625,000	22,658,000
	1912	2,275,000	55,510,000	16,653,000
Rye	1913	120,000	1,740,000	1,044,000
	1912	55,000	880,000	493,000
Potatoes	1913	118,000	5,664,000	4,418,000
	1912	118,000	9,440,000	4,814,000
Hay	1913	1,250,000	[a] 1,675,000	14,572,000
	1912	1,150,000	1,552,000	13,037,000

[a] Tons.

MINERAL PRODUCTION. Nebraska has been termed "the State without a mine," and with a strict interpretation this may be true. There are considerable clay deposits which are utilized, and sand and gravel are produced in some quantities. In the production of volcanic ash or pumice, the State ranks first, with an almost complete monopoly of the production. More than half the total output comes from clay pits. The total value of the stone production in 1912 was $336,889, and the output of sand and gravel was valued at $257,597.

TRANSPORTATION. The total railway mileage in the State on June 30, 1912, was 8090. The Chicago, Burlington, and Quincy Railroad had a mileage in the State of 3565; the Union Pacific of 1958; and the Chicago and Northwestern of 1298. During 1913 the Union Pacific built a new line from Hastings to Gibbon, the total length about 27 miles. The Chicago, Burlington, and Quincy built a small amount of track between Nebraska City and Nemaha. This was largely in the nature of reconstruction of lines occasioned by the encroachment of the Missouri River on the old line. By reason of the development of oil fuels in eastern Wyoming, the Chicago and Northwestern Railway changed their locomotive fuel from coal to oil in 1913, and established a number of fuel oil storage stations along the line. One of the most important of these was at Fremont, Neb. The Chicago, Burlington, and Quincy Railroad also changed a number of their engines for use of fuel oil.

EDUCATION. The total enrollment in the public schools of the State in 1912 was 284,458. Of these 144,386 were boys and 140,072 girls. The total school population between the ages of five and twenty-one was 381,194. The teachers employed numbered 10,939, of whom 1470 were men and 9469 women. The average monthly salary of the men teachers was $79.02, and of women teachers, $55.31. The total expenditures for school purposes during the year was $10,461,719. The legislature of 1913 enacted several important measures relating to education. Several of these provided for taxation. Measures were also passed regulating the length of school terms, and providing State aid for weak districts. Certain high schools were given the privilege of maintaining an agricultural and industrial department.

FINANCE. The total receipts for the fiscal year ending November 30, 1913, amounted to $5,785,893, and the disbursements, $5,718,803. There was a balance on December 1, 1912, of $573,310 and on November 30, 1913, of $640,-

401. The chief sources of income are from taxation, and the principal disbursements are for the support of education and public institutions.

POLITICS AND GOVERNMENT. There was no election for State officers during the year, as the term of Governor Morehead does not expire until January 1, 1915. The next State election will be held on November 3, 1914. The legislature on January 22 elected George W. Norris United States senator. Senator Norris was a successful candidate in the senatorial primaries held in 1912. The legislature of 1913 made several amendments to the election laws of the State. These, however, were not of particular significance.

STATE GOVERNMENT. Governor, John H. Morehead, Dem.; Lieutenant-Governor, S. R. McKelvie, Rep.; Secretary of State, Addison Wait; Treasurer, W. A. George; Auditor, W. B. Howard; Attorney-General, Grant G. Martin; Superintendent of Education, James E. Dalzell; Commissioner of Insurance, L. G. Brian; Commissioner of Public Lands, Fred Beekman—all Republicans, except Governor.

JUDICIARY. Supreme Court: Chief Justice, Manoah B. Reese; Justices, Charles B. Letton, Francis G. Hamer, Jacob Fawcett, William B. Rose, John B. Barnes, and Samuel H. Sedgwick; Clerk, H. C. Lindsay—all Republicans.

STATE LEGISLATURE, 1913. Democrats: Senate, 15; House, 55; joint ballot, 70. Republicans: Senate, 18; House, 45; joint ballot, 63. Majority: Senate, 3 Republicans; House, 10 Democrats; joint ballot, 7 Democrats.

The names of senators and representatives to Congress will be found in the article UNITED STATES, section *Congress*.

NEBRASKA, UNIVERSITY OF. A State institution for higher education, founded at Lincoln, Neb., in 1869. The enrollment in all departments in the autumn of 1913 was 3752. The faculty numbered 256. There were no important changes in the faculty during the year and no noteworthy benefactions were received. The university is supported almost entirely by the State. The amount of productive funds is about $763,000 and the annual income about $904,000. The library contains 105,800 volumes. The president is Samuel Avery, Ph.D.

NECROLOGY. The following list contains the names of persons who died during 1913. An asterisk prefixed to a name indicates that there is a separate biography in proper alphabetical order, in the body of the book:

Abercorn, James Hamilton, Duke of. Scotch nobleman. Died January 3; born, 1838.

Acevedo, Guillermo. Cuban soldier and revolutionist. Died February 24.

Adams, Walter Scott. American financier. Died January 18.

Akin, Louis B. American painter. Died January 2; born, 1871.

Allen, Auster Dana. American metallurgist and educator. Died April; born, 1836.

*Allen, Charles. American lawyer and public official.

*Altman, Benjamin. American merchant and art connoisseur.

*Amateis, Louis. American sculptor and designer.

*Amen, Harlan Page. American educator.

Ancone, Scydenham. Former congressman from Pennsylvania. Died June 20; born, 1824.

André, Louis Joseph Nicholas. French soldier and statesman. Died March 18; born, 1848.

*Apthorp, William Foster. American musical critic and author.

Araujo, Manuel E. President of Salvador. Assassinated February 9; born, 1863.

*Arrol, Sir William. Scotch engineer.

*Ashbourne, Edward Gibson, first baron. British jurist.

Ashburnham, Earl of. English nobleman. Died January 15; born, 1840.

Asser, Tobias Michael (Kard). Dutch public official and member of Hague Court of Arbitration. Died July 28; born, 1838.

*Auguste, Tancrede. President of Haiti.

Aulick, William W. American journalist and playwright. Died December 25; born, 1872.

*Austin, Alfred. British poet.

*Avebury, John Lubbock, first baron. English scientist and writer.

*Bacon, John Mosby. American soldier.

Baermann, Carl. American musician. Died January 18; born, 1842.

Bailey, Lansing Chapman. American editor. Died March 29; born, 1868.

Baker, Sir Edward. An Anglo-Indian official. Died March 28; born, 1857.

*Baker, James Heaton. American soldier, editor, and writer.

Baldwin, Edwin Candee. American bacteriologist. Died October 3; born, 1865.

*Ball, Sir Robert Stawell. British astronomer.

*Barnes, William. American lawyer and insurance specialist.

*Barnett, Samuel Augustus. English clergyman and social worker.

Bartels, Hans von. German painter. Died October; born, 1856.

Bayles, James Conner. American engineer and technical journalist. Died May 8; born, 1845.

*Bayles, James Copper. American engineer and editor.

*Beaumetz, Dujardin. French public official and art curator.

*Bebel, Ferdinand August. German socialist leader and writer.

*Becke, George Louis. Australian author.

*Bedford, Sir Frederick George Denham. English admiral.

*Berry, James Henderson. Former United States senator from Arkansas.

Beville, Sir George Francis. British soldier. Died January 18; born, 1838.

*Bezjian, H. Alexan. Turkish scholar and educator.

Biene, Auguste van. Dutch cellist. Died January 23; born, 1845.

Binney, John. American theologian. Died June 12; born, 1845.

*Bisbee, Marvin Davis. American educator and librarian.

*Blake, Lillie Devareux. American lecturer and advocate of woman suffrage.

Blumenberg, Marc A. American musical critic and editor. Died March 27; born, 1851.

Boehm, George Boerg. German theologian. Died April; born, 1864.

Bonilla, Manuel. President of Honduras. Died March 21; born, 1858.

*Boucicault, Aubrey. American actor.

Bourdillon, Sir James. Anglo-Indian official. Died April; born, 1848.

Bowdoin, George Sullivan. American financier and philanthropist. Died December 16; born, 1823.

*Bowman, Edward Morris. American musician and composer.

*Brady, Anthony Nicholas. American capitalist.

Bramann, Fritz von. German physician and educator. Died April; born, 1845.

*Briggs, Charles Augustus. American theologian and educator.

*Briggs, Frank Obadiah. Former United States senator from New Jersey.

Brokaw, Isaac V. American merchant and philanthropist. Died September 29; born, 1834.

Brookfield, Charles. English censor of plays. Died October 20; born, 1857.

*Brown, Addison. American jurist.

*Brown, Henry Billings. American jurist.

*Brown, John George. American artist.

Brown, Vernon H. American steamship agent. Died August 5; born, 1832.

*Brown, William Garrot. American historian.

*Browne, Francis Fisher. American editor.

Browne, John Deane. American life insurance official. Died March 24; born, 1836.

Bryce, John. New Zealand public official. Died January.

Burden, Isaac Townsend. American financier. Died April 23; born, 1838.

• Campos Salles, Manuel Ferras. Former president of Brazil.

Carnahan, Robert H. American brigadier-general. Died June 15; born, 1831.

Carrier-Belleuse, Robert Louis. French painter and sculptor. Died July 15; born, 1840.

• Carrington, Sir Frederick. English major-general.

• Carrington, Sir John Worrell. British public official.

Carroll, James J. American Roman Catholic bishop, formerly bishop of Neuva Segovia, Philippine Islands. Died April 4; born, 1863.

• Casey, Silas. Rear-admiral of the United States navy, retired.

• Chamberlain, Leander Trowbridge. American clergyman and author.

Chapin, Frederick L. American naval officer. Died December 19; born, 1863.

• Chapman, Henry Leland. American scholar and educator.

Chatto, Andrew. English publisher. Died March 15; born, 1841.

Christopher, Alfred Millard William. English theologian. Died March 10; born, 1820.

Christopherson, Christopher. Danish public official. Died July 26.

Clark, John Eastman. American scholar and educator. Died November 22; born, 1850.

• Coats, Sir James. A Scotch linen manufacturer.

• Cochrane, Henry Clay. American soldier.

• Cole, Aaron Hodgman. American biologist, author, and educator.

• Collier, Price. American writer.

• Compton, Alfred George. American mathematician and educator.

• Constans, Jean Antoine-Ernest. French public official.

• Cooley, Alford Warriner. American jurist and public official.

Coykendall, Samuel D. American railway official and philanthropist. Died January 14; born, 1838.

• Craigie, David Johnston. American soldier.

• Cramp, Charles Henry. American shipbuilder.

• Crawford, James Ludovic Linsay, Earl of. Scotch nobleman and astronomer.

• Crawford, Samuel Johnson. American soldier and public official.

• Cross, Joseph. American jurist.

• Cuneberti, Major-General V. E. Italian naval constructor.

• Curtin, Roland Gideon. American physician and writer.

• Curtis, John Green. American physiologist and educator.

• Davis, Jeff. United States senator from Arkansas.

Debat-Ponsan, Edouard Bernard. French artist. Died January 29; born, 1847.

• De Haven, John Jefferson. American jurist.

• Deming, Clarence. American editor and writer.

Dennison, Charles Simeon. American mathematician and educator. Died July; born, 1859.

• Derrick, William Benjamin. Bishop of the African Methodist Episcopal Church.

• De Wolf, John. American landscape architect.

• Dike, Samuel Warren. American clergyman and publicist.

Dinizulu. Last of the kings of the Zulu nation. Died October 18.

• Doane, William Croswell. A bishop of the Protestant Episcopal Church.

• Dodd, Amzi. American lawyer.

• Dorr, Julia Caroline Ripley. American poet.

• Douglas, Sir Archibald. English admiral.

Douglas, Sir Robert. An English Orientalist. Died May; born, 1838.

• Dowden, Edward. English scholar, literary critic, and educator.

• Draeseke, Felix. German composer.

• Drake, James Madison. American soldier and journalist.

• Draper, Andrew Sloan. American public official and educator.

Dubois, Theodore. French composer. Died October 20; born, 1837.

• Duhring, Louis Adolphus. American dermatologist.

• East, Sir Alfred. English artist.

• Eaton, Joseph Giles. Admiral of the United States navy, retired.

• Eichler, Karl N. American musician.

• Ellis, Robinson. English scholar and educator.

English, Warren B. Former member of Congress from California. Died January 9.

• Estrup, Jacob Bronnum Scavenius. Danish statesman.

Everard, James. American brewer. Died May 31; born, 1829.

Faber, Ludwig E. American portrait painter. Died May 18; born, 1856.

Farrington, William George. American clergyman and editor. Died March 14; born, 1832.

Faure-Goyan, Lucie Félix. French writer. Died June 22; born, 1866.

Fava, Saverio. Italian diplomat, former ambassador to the United States. Died October 3; born, 1832.

• Field, Stephen Dudley. American inventor.

• Finley, William Wilson. American railway official.

• Fitz, Reginald Heber. American physician and educator.

• Flagler, Henry M. American capitalist.

• Foote, Lucius Harwood. American diplomat.

• Forbes, Henry Prentiss. American theologian and educator.

• Ford, Patrick. Irish nationalist and editor.

Forsyth, Alexander Gregor. English major-general. Died April; born, 1824.

Foville, Alfred de. French economist. Died May 14; born, 1843.

Frank, Philip. English physician. Died March 17; born, 1830.

• French, Anne. American author.

• Gaillard, David Du Bose. Engineer of the United States army.

Garcia, Cardinal Gregory. Archbishop of Toledo and primate of Spain. Died October 9.

• Gardiner, John Hays. American educator and writer.

• Gaul, Alfred. English composer.

• Gaynor, William J. American jurist and public official.

• George I., king of Greece.

Gifford, Oscar Sherman. Former member of Congress from South Dakota. Died January 17; born, 1843.

Giles, William D. English Roman Catholic priest. Titular bishop of Philadelphia. Died July 29; born, 1834.

• Gillespie, George Lewis. American major-general.

• Gillott, Sir Samuel. Australian public official.

Godeffroy, Richard. American civil engineer. Died November 25; born, 1846.

Goldberger, Ludwig Max. German public official. Died October 22; born, 1848.

• Goldman, Edwin. English surgeon and educator.

Golenischcheff-Kutusoff, Count A. A. Russian public official. Died February; born, 1845.

• Goodwin, Forrest. Representative to Congress from Maine.

• Gorell, John Barnes, first baron. English jurist.

• Gotch, Francis. English physiologist.

Gourdon, Palma Fermin Christian. French vice-admiral. Died January 14; born, 1844.

• Green, John. American oculist.

• Greene, Daniel Crosby. American missionary.

Gross, Samuel E. American playwright. Died October 24; born, 1842.

• Grubb, Edward Bird. American soldier and public official.

Grundtvig, L. A. Swedish lawyer and educator. Died April.

Gubernatis, Angelo de. Italian Orientalist. Died February; born, 1841.

• Hagenbeck, Carl. A German naturalist and trainer of wild animals.

• Hall, Frederick Byron. American jurist.

Hall, Samuel T. American jurist. Died August 6.

• Hallett, Moses. American jurist.

• Hallock, Joseph Newton. American editor and clergyman.

• Hallock, William. American physicist.

• Hamilton, John Angus Lushington Moore. English newspaper correspondent and writer.

• Hamilton, William Gaston. American engineer and philanthropist.

• Hammond, James Bartlett. American inventor.

Hampel, Joseph. Hungarian archæologist. Died March.

Havard, Francis T. Australian metallurgist and educator. Died June; born, 1878.

• Havemeyer, William Frederick. American capitalist.

• Hayashi, Count Tadasu. Japanese statesman and diplomat.

• Haydn, Hiram Collins. American educator and theologian.

• Hazlitt, William Carew. English man of letters and bibliographer.

• Hearn, George Arnold. American merchant and art collector.

Heiskell, Joseph B. American soldier, former member of the Confederate Congress. Died March 7.

• Hely-Hutchinson, Sir Walter Francis. British administrator.

• Henderson, John Brooks. A former United States senator from Missouri.

• Henry XIV., prince of Reuss. German ruler.

Hess, Frederick. American editor and publisher. Died May 4; born, 1837.

• Hewlepp, C. Russell. American educator.

• Hiss, Philip Hanson. American bacteriologist.

• Hitchcock, George. American artist.

• Hodgkin, Thomas. English scholar.

• Hogan, John Joseph. American Roman Catholic bishop.

• Holland, Edmund Milton. American actor.

• Holleben, Theodor Von. German public official, formerly ambassador to the United States.

Horwitz, Orville. American physician and educator. Died January 28; born, 1859.

• Howland, Henry Elias. American jurist.

Hubbard, Lucius F. Former governor of Minnesota. Died February 7; born, 1836.

• Hussein, Nazim Pasha. Turkish soldier and public official.

Hutchison, George Andrew. English editor. Died February 10; born, 1841.

• Hutchinson, Sir Jonathan. English physician and scientist.

• Ilkeston, Walter Foster, first baron. English baron and physician.

Jaccoud, Francois Sigismond. Permanent secretary of the French Academy of Medicine. Died April 27; born, 1830.

Jack, John. American actor. Died September 17; born, 1836.

• Jackson, Joseph Cooke. American lawyer and soldier.

James, Albert. English actor. Died December 24.

• Jayne, Horace. American scientist and educator.

• Johnson, Charles Edward. English landscape painter.

• Johnson, Herrick. American clergyman, educator, and writer.

• Johnson, Mortimer Lawrence. American rear-admiral, retired, of the United States navy.

• Johnston, Joseph Forney. American public official and United States senator from Alabama.

Jones, Alfred W. Former representative to Congress from Virginia. Died October 9; born, 1833.

• Jones, Charles Henry. American jurist and soldier.

• Jones, Edward Franc. American soldier, public official, and manufacturer.

Julian, John. English hymnologist. Died January 22.

Kanitz, Hans von. German political leader. Died June 29; born, 1841.

• Katsura, Prince Taro. Japanese statesman.

• Keener, William Albert. American jurist and educator.

Kelly, O. H. Founder of the Patrons of Husbandry. Died January 20; born, 1840.

• Kenny, William John. American Roman Catholic bishop.

• Kiamil, Pasha. Turkish statesman.

• King, Joseph Elijah. American clergyman and educator.

Kinkelin, George Frederick. German theologian. Died September; born 1835.

Knight, Charles H. An American laryngolist. Died April 29; born, 1849.

• Koenig, George Augustus. American chemist.

Konig, George. Member of Congress from Maryland. Died May 31; born, 1856.

Lacey, John F. Former member of Congress from Iowa. Died September 29; born, 1841.

• Ladd, Herbert Warren. American public official, former governor of Rhode Island.

• Lamont, Sir James. English explorer.

• Lance, Sir Frederick. British major-general.

• Larrabee, William Henry. American editor and writer on scientific subjects.

• Lathbury, Mary Artemisia. American author and hymn writer.

LaVal, Gustaf de. Swedish engineer and inventor. Died January; born, 1846.

Law, William Arthur. English actor and playwright. Died April 5; born, 1844.

• Leach, Sir Edward Pemberton. English soldier.

• Leake, Joseph Bloomingdale. American soldier and lawyer.

Lee, Edwin Mervin. American soldier, formerly governor of Wyoming Territory. Died January 2; born, 1836.

Lee, George Washington Curtis. American soldier and elder son of Robert E. Lee. Died February 18; born, 1832.

• Lees, James Cameron. Scotch clergyman.

• Legge, Augustus. Church of England bishop.

• Lindsay, Sir Coutts. English artist and patron of art.

• Little, Joseph James. American printer and publicist.

• Llandaff, Henry Matthews, first viscount. English nobleman and public official.

• Lockroy, Etienne Auguste Edouard Simon. French journalist and statesman.

Lomax, Lunsford Lindsay. Former general of the Confederate army. Died May 28; born, 1835.

• Longfellow, William Pitt Preble. American architect.

• Love, Alfred Henry. American merchant and peace advocate.

• Lowe, Thaddeus S. C. American aeronaut.

• Lubbock, John. See Avebury.

Lucas-Championniere, Just. French surgeon. Died October 22; born, 1843.

• Lynch, Henry Finnis Blosse. English traveler and writer on Middle East subjects.

• Lyne, Sir William. Tasmanian public official.

• Lyttleton, Alfred. English statesman.

• Macalister, James. An American educator.

• McBurney, Charles. American surgeon.

• McFarland, John Thomas. American Methodist Episcopal clergyman.

Macfarlane, Alexander. Scotch mathematician and educator. Died August 28; born, 1851.

• Macgregor, James Gordon. Scotch scientist and educator.

• McLellan, Peter Baillie. An American jurist.

• McMurtrie, William. An American chemist.

• Macnaghten, Sir Edward. First baron Macnaghten. English jurist.

Magill, Edward H. American jurist. Died April 20; born, 1858.

• Magnusson, Firikr. Icelandic scholar.

• Major, Charles. American author.

Manteurffel, Otto von. German public official. Former president of the upper House of the Prussian Diet. Died February; born, 1845.

• Marble, John Hobart. American publicist and public official.

• Marshall, Hugh. Scotch chemist and educator.

• Martin, Bradley. American banker.

Martin, Edwin Koenigmacher. American capitalist and soldier. Died May 4; born, 1845.

• Martin, Lewis J. Representative in Congress from New Jersey.

Martin, William Wilsey. English poet. Died March; born, 1834.

• Maybrick, Michael. English composer.

• Maynard, Washburn. An admiral of the United States navy.

Mead, Charles Henry. American temperance lecturer and editor. Died May 6; born, 1841.

Metenier, Oscar. French dramatic author and theatrical manager. Died February; born, 1860.

• Miller, Joaquin. American poet.

• Miller, Roswell. American financier and railway official.

• Milne, John. English seismologist.

• Moale, Edward. Brigadier-general of the United States army.

• Mombert, Jacob Isidor. American Protestant Episcopal clergyman and author.

• Moore, John W. American rear-admiral, retired, United States navy.

Moret, Henri. French painter. Died May; born, 1856.

• Moret Y Prendergast, Sigismond. Spanish public official.

• Morgan, John Pierpont. American financier, philanthropist, and collector.

Morot, Aime. French painter. Died August 12; born, 1850.

Morris, Edward Lynan. American curator. Died September 14; born, 1870.

• Morrow, Prince Albert. American dermatologist.

Morse, Edward Fleet. American mechanical engineer and inventor. Died November 11; born, 1857.

• Murray, Robert. American soldier.

Muthmann, Wilhelm. German chemist and educator. Died September; born, 1861.

Naeyer de Count de Smet. Belgium minister of state. Died September 10.

Nagl, Franz X. Roman Catholic archbishop of Vienna. Died February 4; born, 1863.

• Nash, Paul Cleveland Bennett. American consul-general at Budapest.

Nebeker, Enos H. United States treasurer under President Harrison. Died January 6; born, 1837.

• Nelson, William. American editor.

• Nelson, Wolfred. American physician.

Nestle, Eberhard. English Biblical scholar. Died April; born, 1851.

• Niles, Kossuth. A rear-admiral (retired) of the United States navy.

Nindeman, William F. C. A survivor of the Jeannette polar expedition. Died May 7; born, 1851.

• Northen, William Jonathan. A former governor of Georgia.

• Norwood, Thomas Manson. American jurist and former United States senator from Georgia.

• Ober, Frederick Albion. American author and ornithologist.

O'Connell, Edward. American engineer, constructor of the Monitor. Died January 20; born, 1827.

Ogier, Jules. French toxicoligist. Died September 30; born, 1850.

• Ollivier, Emile. French statesman and historian.

• Olmsted, Marlin Edgar. American public official, former member of Congress from Pennsylvania.

• Oreglia di Santo Stefano, Luigi. Italian Roman Catholic cardinal.

• Orr, James. Scotch theologian and educator.

• Orrock, James. English artist and writer.

O'Sullivan, Thomas C. American jurist. Died July 29.

• Palmer, Thomas Witherell. A former United States senator from Michigan.

Park, John. English metaphysician and educator. Died April.

• Parsons, Eben Burt. American clergyman and educator.

Passy, Louis Charles Paulin. French public official. Died July 31; born, 1830.

Paulien, Joel. Roman Catholic scholar and educator. Died April 20; born, 1831.

• Pepper, George Dana Boardman. American theologian and educator.

Perrier, Louis. Federal councillor and home secretary in the Swiss government. Died May; born, 1849.

• Perry, Alexander James. American soldier.

• Phelps, Charles. American surgeon.

Picard, Alfred Maurice. French public official and member of the Academy of Sciences. Died March 8; born, 1844.

• Pierola, Nicolas de. Peruvian statesman.

Pierson, Henry. English ornithologist. Died February.

• Platt, James Perry. American jurist.

Poortugael, Jonkheer Jacobus C. C. den Beer. Dutch jurist and author. Died January 30; born, 1832.

• Post, George Browne. American architect.

Poulson, Thomas Layman. Methodist Episcopal clergyman and temperance orator. Died June 3; born, 1831.

• Powers, Horace. American jurist and public official.

• Preece, Sir William Henry. English engineer and inventor.

• Prendergast, Sir Harry North Dalrymple. British soldier.

Prentiss, Robert Wadsworth. American educator and mathematician. Died April 5; born, 1857.

• Pugh, Charles Edmund. American railway official.

Pulleine, John James. A Church of England bishop, suffragan of Richmond. Died April 14; born, 1841.

Quaritch, Bernard. English publisher and bookseller.

• Rainer, Archduke. Austrian nobleman and soldier.

• Ralph, Elsie (Reasoner). American sculptor and journalist.

• Rampollo Mariano. Roman Catholic cardinal.

Ravenstein, Ernst George. German cartographer. Died March; born, 1847.

• Raymond, Charles Walker. American soldier.

• Reid, Sir George. Scotch painter.

Reiss, Hans. American inventor. Died April 3; born, 1836.

• Reyes, Bernardo. Mexican soldier.

• Reynolds, George Greenwood. American lawyer and jurist.

• Richardson, Charles Francis. American scholar and educator.

• Roberts, Samuel Judson. American editor and political leader.

• Robinson, Henry Douglas. American bishop of the Protestant Episcopal Church.

• Rochefort-Lucay, Victor Henri, Marquis de. French politician, journalist, poet, and revolutionist.

• Roddenbergy, Seaborn Anderson. American public official, member of the House of Representatives from Georgia.

Rose, Ralph. American athlete. Died October 16; born, 1885.

• Rose, Uriah M. American jurist and peace advocate.

Ross, F. W. Forbes. English surgeon. Died September 20.

• Rumbold, Sir Horace. English diplomat.

Russell, Horace. American jurist. Died June 14; born, 1843.

• Sabine, William Tufnell. American bishop of the Reformed Episcopal Church.

Saint Gaudens, Louis, American sculptor. Died March 8; born, 1854.

• Sawtelle, Charles Greene. American soldier.

Schlieffen, Count Alfred von. German field marshal. Died January 4; born, 1830.

• Schmidt, Erich. German scholar and educator.

• Schniewind, Friedrich. American chemist.

Scott, Sir Richard. Canadian statesman. Died April 23; born, 1825.

• Sedgwick, Adam. English zoölogist.

Seidl, Gabriel W. German architect. Died April; born, 1848.

Shea, Sir Edward Dalton. A former president of the legislative council of Newfoundland. Died January; born, 1820.

• Sheehan, Patrick Augustine. Irish Roman Catholic priest and author.

Shieker, George Frederick. American Lutheran theologian and educator. Died September 8.

• Smith, Benjamin Eli. American lexicographer.

• Solomon, Sir Richard. British administrator.

Sonnenschien, Adolf. English mathematician and educator. Died May; born, 1825.

• Sophie, queen mother of Sweden.

Soule, Charles Carroll. American publisher and author. Died January 7; born, 1842.

• Southerland, Cromartie Southerland-Leveson-Gower, 4th Duke of. English nobleman.

• Spear, William Thomas. American jurist.

• Sprigg, Sir John Gordon. A former premier of Cape Colony.

• Stafford, John Aloysius. American Roman Catholic priest and educator.

• Stauffer, David McNeely. American engineer, author, and soldier.

Stewart, Hugh Angus. American pathologist.. Died March 29; born, 1882.

• Stiness, John Henry. American jurist.

• Stokes, Anson Phelps. American banker and philanthropist.

Stull, Henry. American painter. Died March 19; born, 1851.

Sullivan, Timothy D. American politician, congressman from New York. Died August 31.

• Swift, Lewis. American astronomer.

Sykes, Sir Tatton. English sportsman. Died May 4; born, 1826.

Taschner, Ignatius. German sculptor. Died November 27; born, 1871.

Teller, Charles. Discoverer of the cold storage process. Died October 19; born, 1828.

Terry, John Taylor. American capitalist. Died May 3; born, 1822.

Thornton, Thomas Henry. English public official. Died March 3; born, 1832.

• Thureau-Dangin, Paul Marie Pierre. French historian.

• Thwaites, Reuben Gold. American historian and educator.

• Tinworth, George. English artist.

• Tokugawa, Prince Keiki. Fifteenth and last of the Shoguns of Japan.

• Torney, George Henry. American surgeon and public official.

• Townsend, James Mulford. American lawyer and educator.

Trumpy, Jean Rodolphe. American horticulturist. Died May 23; born, 1830.

• Tuke, Sir John Batty. English alienist.

• Uhler, Philip Reese. American scientist and educator.

Underwood, John Cox. American soldier, former Lieutenant-Governor of Kentucky. Died October 26; born, 1840.

Unger, Joseph. Austrian jurist. Died May; born, 1829.

• Vambery, Arminius. Hungarian linguist and orientalist.

Vander-Meulen, Frederick Samuel. British admiral. Died February; born, 1839.

• Vives Y Tuto, José Calasanzio. Spanish Roman Catholic cardinal.

Vivins, J. Addison. American educator. Died March 3; born, 1863.

• Wait, Lucien Augustus. American mathematician and educator.

• Wakeman, Thaddeus Burr. American author and advocate of free thought.

• Wallace, Alfred Russell. English scientist.

Ward, Lester F. American geologist and botanist. Died April 19; born, 1841.

• Warwick, Charles Franklin. American lawyer, public official, and writer.

• Waterloo, Stanley. American author and journalist.

• Watson, William Henry. American physician and scientist.

Weber, Heinrich. German mathematician and educator. Died May; born, 1842.

• Weems, Capell Lain. A former congressman from Ohio.

• Westlake, John. English jurist and writer on legal subjects.

Whalen, John Sibley. American public official. Died May 3; born, 1868.

• White, Stephen Van Culen. American financier.

• White, William Hale. English writer.

• White, Sir William Henry. English naval officer.

• Wilder, William Henry. American public official, member of Congress of Massachusetts.

• Wilson, Charles Irving. American soldier.

Windmüller, Louis. American financier and philanthropist. Died October 1; born, 1835.

Windsor, Arthur Lloyd. Australian journalist. Died January.

• Winslow, Lyttleton Stewart Forbes. English physician and psychologist.

• Wise, John Sergeant. American lawyer and soldier.

• Wolseley, Garnet Joseph, first Viscount. English field-marshal.

Wombwell, Sir George Orby. The last survivor of the officers who took part in the charge of the Light Brigade. Died October 17; born, 1832.

• Woodford, Stewart Lyndon. American diplomat.

• Woodruff, Carle Augustus. American soldier.

• Wright, George. English jurist.

• Wyndham, George. English statesman and writer.

Ye-Ho-Na-La. Empress Dowager of China. Died February 23; born, 1865.

NEGRI SEMBILAN, THE (NINE STATES). A federation of states composing a state of the Federated Malay States (q.v.). The Malays (numbering about 65,000) engage chiefly in agriculture in the Kuala Pilah and Tampin districts. The tin mines are worked by Chinese. Export of tin in 1911, 8517 Straits Settlements dollars; tin ore, 2,741,591; rubber, 5,039,968; gambier, 168,457; tapioca, 274,079; pepper, 21,014—total exports, 8,420,746 (7,987,071 in 1910). Total imports, 4,708,194 S. S. dollars, against 5,014,277 in 1910. Seremban is the capital. A. H. Lemon was the British resident in 1913; Tungku Mohammed, the reigning sultan.

NELSON, WILLIAM. An American editor, died October 26, 1913. He was born in Rutherglen, England, in 1839. When still a child, his parents removed to the United States, where he was educated in the common schools, and in 1852 began an apprenticeship in the newspaper business in Munroe, Wis. At the outbreak of the Civil War, he enlisted, and served throughout the war. At its close he became joint proprietor of a paper in a small town in Wisconsin, and, after editing several other papers in that State, he removed to Utah in 1876, and from 1876 to 1878 was United States marshall for that State. In 1881 he became connected with the *Salt Lake Tribune*, and after filling various positions on that paper, he became its editor-in-chief in 1907. He retained this position until his death.

NELSON, WOLFRED. An American physician, died January 16, 1913. He was born in Montreal, in 1846, and graduated from McGill University in 1872. From 1880-85 he practiced at Panama, Colombia, and from 1885-88 traveled in Central and South America, Mexico, and the West Indies, collecting data in climatology and tropical diseases. In 1890 he began the practice of medicine in New York and continued this until the time of his death. In 1904 he went to Cuba for the New York *Herald*, and for his work in the prevention of tropical diseases was given the Order of Queen Isabelle the Catholic. He was the author of *A Review of Several Difficulties to be Overcome in the Construction of the Panama Canal* (1887); and *Five Years of Panama* (1885); and he contributed many papers to the medical press.

NEON LAMPS. See ELECTRIC LIGHTING.

NEOSALVARSAN. This drug was introduced in 1912 as a substitute for salvarsan, with the expectation that it would prove relatively less toxic and would obviate the undesirable by-effects of the latter drug. It appeared that this hope was not altogether fulfilled, since a number of cases of death and of paralysis of the nerves similar to those occurring from "606" were reported in the brief time it had been on trial. Hagerty, Wechselmann, and Swift reported fatalities. A. Bayet, of Brussels, reported one case of paralysis of the legs and bladder and one of bilateral neuritis of the forearm. Bayet believed that the immediate effects of neosalvarsan were less severe than those of salvarsan, but the late effects were practically identical. See SALVARSAN.

NERADOL. See CHEMISTRY, INDUSTRIAL, under *Synthetic Products*.

NETHERLANDS, THE (or HOLLAND, KINGDOM OF). A constitutional hereditary monarchy of western Europe. Capital, The Hague.

AREA AND POPULATION. Including the rivers of Zeeland and South Holland, the Zuider Zee, the Dollart, and the Wadden (the shallows extending along the shores of Friesland and Groningen as far as the Dollart), the total area, based on a low-tide planimetric calculation, is 40,828.71 sq. kilometers (15,764 sq. miles). The following table shows the land area, the population according to the census of December 31, 1909, and as calculated December 31, 1912, with density per sq. kilometer in 1912:

	Sq. kms.	1909	1912	D.
North Brabant..	4,972.84	623,079	649,306	127
Gelderland	5,024.40	639,602	662,260	130
South Holland...	2,931.00	1,390,744	1,471,761	489
North Holland...	2,762.01	1,107,693	1,156,162	414
Zeeland	1,831.75	232,515	236,149	132
Utrecht	1,363.21	288,514	298,367	216
Friesland	3,220.25	359,552	366,305	111
Overijssel	3,354.50	332,880	397,341	119
Groningen	2,283.52	328,045	336,741	148
Drenthe	2,662.09	173,318	181,501	68
Limburg	2,194.68	332,007	358,409	163
Total	32,600.25*	5,858,175	6,114,302	185

* 12,587 square miles.

Males in 1909 numbered 2,899,125, against 2,959,050 females. The majority of the population are Protestants. Dutch, 5,788,193; German, 37,534. There were 45,931 marriages in 1912 (43,030 in 1911), 176,909 (174,165) births, 81,287 (86,782) deaths, 6640 (6638) stillbirths, 2155 (2638) emigrants. Communal population (December 31, 1912) of Amsterdam, 587,876; Rotterdam, 446,897; The Hague, 294,693; Utrecht, 122,853; Groningen, 78,276; Haarlem, 70,491; Arnhem, 64,823; Leiden, 59,207; Nimeguen, 58,390; Tilburg, 53,498; Dordrecht, 48,295; Maastricht, 38,611; Apeldoorn, 38,475; Leeuwarden, 37,897; Bois-le-Duc, 36,029; Enschede, 35,495; Delft, 34,634; Schiedam, 33,882; Zwolle, 33,712; Hilversum, 32,938; Emmen, 31,076; Deventer, 28,627; Breda, 27,512.

EDUCATION. Primary instruction is compulsory, and free in the public schools, which are provided by local taxation where private institutions are lacking. In preference, however, to maintaining public schools, the government encourages and subsidizes private instruction. The number of public elementary schools reported in 1910-11, was 3303, with 18,373 teachers and 563,047 pupils; private, 2060, with 11,873 teachers and 353,547 pupils. Public infant schools 163, with 30,185 pupils; private 1096, with 105,470. The average attendance is 95 per cent. Secondary instruction is not free. The special schools are excellent and well attended. There are universities at Amsterdam, Groningen, Leiden, and Utrecht, as well as a small private university.

PRODUCTION. The land is flat and low, and traversed by numerous rivers and canals. Grains, flax, hemp, root crops, and tobacco are grown. Poultry, eggs, and dairy products are exported. Of the productive area, 872,171 hectares are classed as arable, 1,213,073 pasture, 78,097 gardens and orchards, 260,923 forest. The following table shows area and production of main crops in 1912 and 1913 (1913 figures subject to slight revision), with production per hectare in 1912:

	Hectares		Quintals		Qs.
	1912	1913	1912	1913	ha.
Wheat	57,854	56,600	1,501,007	1,299,083	25.9
Rye	228,044	227,562	4,026,713	3,877,656	17.7
Barley	26,861	26,864	728,518	717,641	27.3
Oats	137,863	138,530	2,645,038	3,594,541	19.2
Flax*	14,862	......	98,197	....	....
Beets†	64,824	60,555	21,760,860	13,903,810	335.7

* Fibre production. † Sugar beets.

Quantities of bulbs, shrubs, trees, vegetables, and fruits are raised for export, the total shipments of bulbs, shrubs, and trees being valued in 1911 at 15,156,141 guilders (15,230,483 gl. in 1910), vegetables, 56,700,000 (64,800,000), fruits, 2,546,000 (3,188,000).

The coal mines belong mostly to the state; total output (1911), 1,476,580 metric tons, valued at 9,488,000 gl. There were reported (1911) 434 distilleries, 11 sugar refineries, 27 beet-sugar refineries, 34 salt works, 437 breweries, 69 vinegar factories. The output of the herring fisheries (North Sea) was valued at 11,049,693 gl.

COMMERCE. The table below shows in millions of guilders the trade (special) by great classes and the totals for three years:

	Imports		Exports	
	1911	1912	1911	1912
Foodstuffs	869.1	901.2	833.5	914.1
Raw materials...	1,312.6	1,391.3	983.5	1,038.4
Manufactures ...	598.4	695.0	517.1	584.0
Miscellaneous ...	540.1	579.9	377.3	558.3
Mdse.	3,315.2	3,567.4	2,711.4	3,094.8
Prec. metals...	18.0	45.6	20.5	18.3
Total	3,333.2	3,613.0	2,732.3	3,113.1

A comparison of some of the principal articles of trade, imports with exports, is of interest as an indication of the chief sources of the nation's wealth and the corresponding necessaries not supplied by home production (values in thousands of guilders, 1911)—cereals and flour, 573,630 imports and 357,409 exports (wheat 207,224 imports and 163,355 exports); iron and steel, 422,484, and 296,040; copper, 194,277 and 174,508; textiles, raw and manufactured, 126,788 and 128,199; coal, 113,560 and 47,430; rice, 100,457 and 64,879; timber, 107,388 and 67,571; coffee, 57,734 and 39,099; butter, 2739 and 30,170; margarine, 23,218 and 48,718; sugar, 34,903 and 76,166; cheese, 98 and 18,063; paper, 9819 and 80,782; vegetables, 6000 and 56,700; bulbs, shrubs, etc., 2639 and 15,156; flax, 1010 and 20,691; seeds (flax, colza, etc.), 42,510 and 23,269.

The table below gives countries of origin and destination in the 1912 trade, values in millions of guilders; it must be borne in mind, however, that while oversea trade is generally credited to the country of first origin, trade by the frontiers is credited to the immediate transmitter, so that much of the trade with France is classed as Belgian, etc.:

	Imps.	Exps.		Imps.	Exps.
Germany	1,051.1	1,555.0	Rumania	59.2	6.7
D. E. Ind.	495.8	154.2	Norway	47.0	22.4
U. K.	354.4	604.7	Brazil	31.6	2.1
Belgium	343.6	370.7	France	30.6	25.0
U. S.	362.0	135.5	Italy	13.2	23.5
Russia	291.7	25.1	Turkey	10.6	19.2
Spain	103.9	9.1	Africa	9.4	18.9
Br. E. Ind.	87.3	7.9	Other	261.8	105.6
Sweden	59.3	27.5			
			Total	3,613.0	3,113.1

There entered at the ports in the 1912 trade 15,753 steamers, of 48,082,431 cubic meters capacity (Dutch, 3897, of 11,948,537): cleared, 13,619, of 47,752,633 (3903, of 12,067,558). Sail entered, 1247, of 978,169 cubic meters capacity (Dutch, 708, of 247,276); cleared, 1531, of 1,024,797 (873, of 278,637). Holland is practically free-trade and the only duties levied are of a fiscal character. Merchant marine, January 1, 1912, 780 vessels, of 1,747,020 cubic meters capacity.

Communications. Railway lines in operation, January 1, 1913, 3256 kilometers. Telegraph lines (state), 7738 kms.; wires, 38,242 kms.; stations, 1553 (1166 state). Urban telephone wires, 204,973 kms.; interurban, 77,418. Post offices, 1525.

Finance. The guilder (worth 40.2 cents) is the unit of value. In the table below are given the details of the budget for 1914, with totals for that and foregoing years:

Revenue	1000 gl.	Expenditure	1000 gl.
Excise	62,340	Interior adm.....	43,630
Direct taxes.....	51,330	Interior dept.....	41,458
Stamps, etc......	30,860	Justice	11,758
Customs	16,680	Marine	20,848
Domains	1,479	War	34,965
Posts	18,475	Debt service.....	38,593
Tels. and tels....	5,480	Finance, etc......	39,449
Lottery	655	Colonies	2,701
Licenses	166	Agriculture, etc..	16,734
Pilot dues........	3,750	Civil list.........	885
Mine duties......	40	Cabinet, etc......	811
Railways	4,388	Foreign affairs...	1,464
Various	32,773	Other	500
Total 1914......	228,416	Total 1914......	253,346
" 1913......	209,531	" 1913......	231,220
" 1912......	202,068	" 1912......	222,018
" 1910......	199,499	" 1910......	204,747

The total capital of the public debt stood (1914) at 1,148,379,900 guilders; interest, 32,471,613; amortization, 6,121,500.

Army. The army of the Netherlands consists of a militia organized under the terms of the militia law of 1901, as amended on February 2, 1912, which provides for a total militia service of six years, every citizen being liable to service. After completing this period in the militia, five years is spent in the Landwehr, and then up to the age of 40 in the Landsturm. The recruits for the militia are obtained by lot so as to provide an annual contingent of 23,000 men, those enrolled serving for variable periods from 8½ to 24 months, depending on the time of year and the arm of the service. This system aims to secure a constant average strength at all times, so that the kingdom may be guarded against sudden attack during mobilization. The organization of the field army consists of four divisions of all arms, each division having a strength of about 19,000 men and duplicating itself on mobilization. The peace strength, comprising the cadres and the men under training, is 22,000, but the war strength is estimated at 200,000 men.

Navy. The strength in ships built and building, October 31, 1913, was as follows: 9 armored and 6 protected cruisers, of 66,430 aggregate tons; 4 mine-layers, of 1880 tons; 3 gunboats, of 1140 tons (building); 4 torpedo-boat destroyers built and 4 building, of 4000 tons; 38 torpedo boats built and 12 building; 5 submarines built and 4 building.

Four destroyers built at Flushing, 2 completed in 1911 and 2 in 1912, were for the East India service; they displace 515 tons, speed, 30 knots, range, 2600 miles. The 4 under construction are also for the East India service; they will displace 480 tons, and have a speed of 30 knots. Of the torpedo boats building, 8 were authorized in 1913; they will displace 200 tons, and have a speed of 26 knots. The 3 gunboats will displace 540 tons, speed, 16 knots. Two of the submarines building (350 tons submerged displacement) are for the Indies, and 2 (200 tons) for home waters. The report, dated July, 1913, of the commission of inquiry into the question of naval defense for the Indies urged the construction of 9 dreadnoughts (21,000 tons), 6 torpedo cruisers (1200), 8 destroyers, 44 torpedo boats, 22 submarines.

Government. By the constitution of 1848 (amended 1887) the executive power rests in a sovereign and the legislative in the sovereign and a parliamentary body composed of 2 chambers. The upper chamber has 50 members, elected for 9 years by the provincial states and possesses powers of approval or rejection, not of amendment. The lower, composed of 100 popularly elected members, possesses solely the right of legislative initiative. A consultative state council of 14 members is appointed by the sovereign.

Wilhelmina, the reigning queen, was born August 31, 1880; she succeeded her father November 23, 1890, her mother acting as regent till August 31, 1898. She married, February 7, 1901, Duke Henry of Mechlenburg-Schwerin. The heiress-apparent is Princess Juliana, born April 30, 1909. The ministry, as constituted August, 1913, was as follows: Jhr. Dr. J. Loudon, foreign affairs; Dr. P. W. A. Cort van der Linden, interior; Dr. B. Ort, justice; Captain J. J. Rambonnet, marine; A. E. J. Bertling, finance; Colonel N. Bosboom, war; Dr. C. Lely, internal administration; Dr. M. W. F. Treub, agriculture, etc.; Dr. Th. B. Pleyte, colonies.

History. The coast defense bill was passed in May by a vote of 54 to 35 (Liberals and Socialists voting in the negative) in the Second Chamber, providing for the fortification of Flushing and the expenditure of approximately 12,000,000 guldens on defense works. The work was to be executed under the direction of the department of defense, which had superseded the old departments of war and marine. Defense occupied the States-General almost to the exclusion of other measures, but time was found before dissolution to pass a law for compulsory insurance against sickness and old age. Elections for the new Second Chamber were held in June under the provisions of the electoral reform act of 1896, which enfranchised about 63 per cent. of the number of male citizens of 25 years and older. The Catholic party lost one of its 26 seats; other elements of the Right also suffered. Consequently the Right, with only 45 seats, no longer controlled a majority, and Dr. Theodorus Heemsperk was obliged to resign with his cabinet. The Liberal party, with 37 representatives, was likewise unable to form a ministry, unless it could gain the support of the 18 Socialists. An attempt was made to form a coalition ministry in which the Socialists should have three, and the Liberals six, portfolios; this was vetoed, however, by the Socialist congress at Zwolle on August 10 (for a more complete discussion see Socialism, *Netherlands*). Although unwilling to share in a coalition ministry, the Socialists agreed to support an extra-parliamentary cabinet formed by State Councillor Cort van der Linden (Moderate Liberal), on condition that electoral reform and old-age pensions would be incorporated in the ministerial programme. The States-General were convened on September 16 by Queen Wilhelmina, whose speech from the throne foreshadowed measures for (1) universal suffrage, (2) old-age pensions, and (3) the draining of parts of the Zuyder Zee at an estimated cost of $46,000,000.

NEVADA. Population. The population of the State in 1910 was 81,875. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 94,722.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	1,000	34,000	$ 40,000
	1912	1,000	30,000	29,000
Wheat	1913	39,000	1,081,000	887,000
	1912	39,000	1,137,000	1,137,000
Oats	1913	11,000	473,000	307,000
	1912	10,000	400,000	208,000
Potatoes	1913	11,000	1,760,000	1,197,000
	1912	12,000	2,136,000	1,282,000
Hay	1913	235,000	*a* 646,000	7,106,000
	1912	227,000	681,000	5,925,000

a Tons.

Mineral Production. The yield from the mines of the State in 1913 was estimated by the United States Geological Survey to be valued at $36,374,000. This includes gold, silver, copper, lead and zinc. The total value of the mineral products of the State in 1912 was $39,111,828, compared with $34,501,832 in 1911. Of the total for 1913, which is about 5 per cent. less than in 1912, the value of copper forms the largest part of 37 per cent. The mine production of gold decreased about 10 per cent., or from $13,456,180 in 1912 to $12,072,000 in 1913. Nevada in 1913 was the leading State in the production of silver, which came mainly from the silver mine at Tonopah. The mine production increased to about 15,300,000 ounces, or about 7 per cent. There was an increase of about 2 per cent. in the mine production of copper, or from 86,477,794 pounds in 1912 to about 88,368,890 in 1913. The lead output decreased from 19,500,000 tons in 1912 to 15,300,000 tons in 1913, or about 21 per cent. The output of spelter from zinc ores increased from 13,322,988 pounds in 1912 to 15,137,000 pounds in 1913.

The State is an important producer of copper. The production in 1912 was 83,413,900 pounds, as compared with 65,561,015 pounds in 1911. The increase in the production in 1912 was largely due to the output from the Yerrington district, which became an important factor in the copper industry until 1908 when production began from the Ely district. At the close of 1912 the State had a recorded production of 286,914,012 pounds, the larger part of the output coming from the Ely and Yerrington districts.

The gold production of the State in 1912 was valued at $13,456,180, compared with $18,193,397 in 1911. The largest decrease was $4,047,328 from the mines of the Goldfield district. Other districts of the State suffered losses. Placer and surface mines worked by hydraulic and sluicing methods and by drift mining produced $231,653 in gold in 1912. By far the greater part of the gold production of Nevada is from amalgamation and cyanidation of the dry or siliceous ores, more than half of which is from Goldfield, in Esmerelda County, and nearly one-fourth in Tonopah, in Nye County. Esmerelda County led in production in 1912 with $7,014,559, compared with $11,198,602 in 1911. Of the total production, Nye County, chiefly Tonopah, produced 10,210,296 ounces in 1912, compared with 10,918,263 in 1911.

Education. The reports of the State superintendent of education are for the biennial period 1911-12. The total number of children of school age in the State in 1912 was 12,695. The enrollment was 11,098, and the average attendance 8190.

Politics and Government. There was no election for State officers during the year, as the terms of Governor Oddie and the other State officials do not expire until December 31, 1914. The next State election will be held on November 3, 1914.

Legislation. The legislature met in 1913 and passed several important measures. These include a workmen's compensation act, an act prohibiting child labor, an act creating a State tax commission, a food and drugs act, an act providing for a uniform system of public roads, acts putting into effect the amendment adopted in November, 1912, providing for the article on public officers, an inheritance tax law, a uniform warehouse receipts law, a corrupt practices act limiting candidates to an expenditure of 20 per cent. of one year's salary, and a provision providing for submission to the people of a woman suffrage amendment to the Constitution. Below there will be found further consideration of certain of the more important measures just enumerated.

The legislature voted for the Seventeenth Amendment, providing for the direct election of senators, and passed a virtually new election law. While the legislature approved the amendments to the Constitution relating to the election of United States senators by direct vote of the people, it failed to enact any provision for the election of the senators to be elected in 1914. A special session of the legislature for the purpose of passing necessary laws was contemplated in the event of the failure of a general law on the subject by Congress.

There was a material change in the divorce law, which, as passed in 1913, required *bona fide* residence of one year before filing complaint in all cases except where both parties reside in the State, in which case there must be a six months' residence. This law was to become effective January 1, 1914.

A new and comprehensive tax law was passed giving a State tax commission power to supervise and equalize State and county taxes. It resulted in a very large increase in total assessed valuations and promised materially to reduce the State and county tax rates.

An industrial insurance act was also passed to govern all persons employing two or more. Acceptance of the law is elective with both employer and employe on condition, however, that, if rejected, the person rejecting is subject to all common-law defenses or denied common-law defenses, as the case may be. Employers are required to contribute premiums to the insurance commission which settles claims for damage.

State Government. Governor, Tasker L. Oddie; Lieutenant-Governor, G. C. Ross; Secretary of State, George Brodigan; Treasurer, William McMillan; Comptroller, Jacob Eggers; Superintendent of Public Instruction, J. E. Bray; Attorney-General, George B. Thatcher—all Democrats, except Oddie, Eggers, and McMillan, Republicans.

JUDICIARY. Supreme Court: Chief Justice, G. F. Talbot, Democrat; Justices, P. A. McCarran, Democrat; Frank H. Norcross, Republican; Clerk, Joe Josephs, Democrat.

STATE LEGISLATURE, 1913. Democrats: Senate, 12; House, 32; joint ballot, 44. Republicans: Senate, 8; House, 19; joint ballot, 27. Independents: Senate, 1; House, 1; joint ballot, 2. Socialists: Senate, 1; House, 1; joint ballot, 2. Democratic majority: Senate, 2; House, 11; joint ballot, 13.

The names of senators and representatives to Congress will be found in the article UNITED STATES, section *Congress*.

NEVADA, UNIVERSITY OF. A State institution of higher education, founded at Reno, Nev., in 1886. The total enrollment in all departments in 1913 was 175. The faculty numbered 50. S. P. Doten was appointed director of the Experiment Station in place of G. H. True, resigned. The university received the gift of the income on approximately $20,000 from the estate of David B. Russell. The yearly income from all sources is about $180,000. The library contains about 25,000 volumes. The president is Joseph David Stubbs, D.D., LL.D.

NEW BRUNSWICK. A province of the Dominion of Canada. Area, 27,985 square miles; population (census of June 1, 1911), 351,889 (331,120 in 1901). Fredericton, the provincial capital, had 7208 inhabitants in 1911. A lieutenant-governor administers the province—Josiah Wood in 1913 (appointed March 6, 1912). Premier in 1913, James K. Fleming. See section so entitled under CANADA, DOMINION OF.

NEW CALEDONIA. A French Melanesian colony which, with the Loyalty Islands and other dependencies, covers 19,823 square kilometers, with 50,680 inhabitants. The dependencies are Wallis Archipelago, 96 square kilometers and 4500 inhabitants; Fortuna and Alofi, 159 square kilometers and 1500 inhabitants; Chesterfield Islands, 0.8 square kilometers. The capital of the colony is Nouméa, with 6968 inhabitants. Imports (1911), 15,156,000 francs; exports, 13,099,000. The 1911 budget balanced at 3,867,000 francs. Debt, January 1, 1912, 10,362,000 francs. Railways, 16 kilometers; telegraph lines, 1042 kilometers (wire, 1650). Governor (1913), A. Brunet.

NEWFOUNDLAND. A British colony; an island on the northeast side of the gulf of St. Lawrence. Area, 42,734 square miles. Population (1911), 242,619, including 3949 in Labrador, of which the coastal portion comprehended between Hudson Strait and Blanc Sablon, including the Hamilton basin, is attached administratively to Newfoundland. Capital, St. John's, with 32,292 inhabitants. There were (in 1911) 1071 schools, denominational and charging fees, with 50,246 scholars. The fisheries occupy the majority of the population, cod being the chief export—1,182,720 quintals, valued at $6,544,604, in 1910-11, besides 300,000 quintals retained for local consumption. Agriculture, mining, and lumbering are carried on. At Grand Falls and Bishop's Falls are large pulp and paper mills. The government railway from St. John's to Harbor Grace is 84 miles long, and the branch to Placentia is 27 miles. The line to Exploits is 200 miles long; and the line, recently completed, from Exploits to Port-aux-Basques, 285 miles. Total length, with branches to Brigus, Tilton, Carbonear, and Burnt Bay, about 638 miles. Length of lines under construction, to Trinity, Bonavista, Heart's Content, Trepassey, Fortune Bay, and Bonne Bay, about 300 miles. Trade and finance statistics are given below:

	1908-9	1909-10	1910-11	1911-12
Imps.	$11,402,337	$12,799,696	$13,383,910	$14,733,490
Exps.	10,848,913	11,824,997	11,975,747	13,874,809
Rev.	2,947,869	3,447,989	3,527,126	3,736,456
Expend.	2,947,869	3,137,775	3,354,747	3,524,653
Ship.*	1,858,161	2,099,698	2,251,595	....

* Tonnage entered and cleared.

Customs revenue (1910-11), $2,898,615. Public debt, June 30, 1912, $27,489,957 (including municipal debt of St. John's, $1,062,174). Governor, W. E. Davidson, appointed 1913.

The general election, held on October 29, 1913, hinged chiefly on the issue of the ministerial policy of rapid railway extension and resulted in a victory for the government of Sir Edward Morris, who has been prime minister since 1909.

NEW GUINEA. The largest of the East Indian Islands. See DUTCH EAST INDIES; GERMAN NEW GUINEA; PAPUA.

NEW HAMPSHIRE. POPULATION. The population of the State in 1910 was 430,572. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 436,740.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	22,000	814,000	$529,000
	1912	23,000	1,058,000	794,000
Oats	1913	12,000	420,000	235,000
	1912	12,000	468,000	225,000
Potatoes	1913	17,000	2,074,000	1,721,000
	1912	17,000	2,380,000	1,452,000
Hay	1913	495,000	*a* 495,000	8,514,000
	1912	501,000	626,000	9,390,000
Tobacco	1913	100	*b* 165,000	30,000
	1912	100	170,000	31,000

a Tons. *b* Pounds.

MINERAL PRODUCTION. The principal mineral production of the State is granite, the value of which represents about two-thirds of the total value of the mineral production of the State. The clay resources are used in the manufacture of common brick and pottery. Less important mineral products are occasional gems, mica, mineral waters, and scythe stones. The granite quarried in 1912 was valued at $1,311,488, compared with $1,017,262 in 1911.

TRANSPORTATION. The total steam railroad mileage in the State in 1913 was 1259.47 miles. This includes 6.37 miles of new construction on the Boston and Maine Railroad.

EDUCATION. The total number of children of school age in the State in 1912 was 37,806. There were 2058 public schools, 1406 graduate schools, and 71 high schools. The school houses numbered 1707. The men teachers numbered 84, and the women teachers 445. The average monthly salary of men teachers was $67.37, and of women teachers $41.92. The total expenditures for education in the State were $1,883,589.

Finance. The report of the State treasurer shows a balance at the beginning of the fiscal year 1913 of $567,827. The total receipts for the year were $3,209,759, and the disbursements $3,273,675, leaving a balance at the end of the fiscal year of $503,902. The chief sources of revenue are the State tax, corporation taxes, automobile fees, etc., and the chief expenditures are for highway construction, ordinary State expenses, bond maturities, and interest, etc. The funded debt of the State at the end of the fiscal year was $1,156,000.

Charities and Corrections. The charitable and correctional institutions under the control of the State are the following: The New Hampshire State Industrial School at Manchester, the New Hampshire School for Feeble-Minded Children at Laconia, the New Hampshire Soldiers' Home, the New Hampshire State Sanitarium, and State almshouses, asylums and prison. There are in addition a number of private institutes which are indirectly under the supervision of the State board of charities and correction. The deaf, dumb, and blind beneficiaries of the State are educated in schools in Maine and Massachusetts.

Politics and Government. There was no election for State officers during the year, as the term of Governor Felker does not expire until January 1, 1915. The next State election will be held on November 3, 1914. The most interesting political events of the year were connected with the election of governor and United States senator by the legislature. The election for governor, held in November, 1912, resulted in the following vote: Felker, Democrat, 34,203; Worcester, Republican, 32,504; Churchill, Progressive, 14,405; and others about 2000. Under the constitution of the State as it then stood, a majority rather than a plurality was necessary for an election, and there was no choice by the people as a result of this vote. The election was therefore thrown into the legislature of 1913. Eleven senators were elected on the Republican ticket, and nine on the Democratic, with no choice in four districts, because of the majority ruling above alluded to. For the house, 208 were elected as Republicans, and 197 as Democrats. Following the election, the State committee of the Progressive party advanced the claim that about thirty of those elected on the Republican ticket were Progressives and would not be bound to support the Republican nominees. On January 2, 1913, by coalition of the Progressives and Democratic members of the legislature, Samuel D. Felker was elected governor, and W. J. Britton was elected speaker of the House of Representatives. For the election of United States senator to succeed Senator Burnham, whose term expired in 1913, the Progressives and Democrats attempted to unite to elect a Progressive senator. This attempt did not succeed, however, and a deadlock ensued which lasted from the middle of January until March 13, when Henry F. Hollace, a Democrat, was elected. The legislature ratified the Seventeenth Amendment, providing for the direct election of senators. A woman suffrage bill was defeated in the House on March 18. The House of Representatives on April 16 expelled Clifford L. Snow for attempting to sell his vote.

Legislation. The legislature met in 1913 and enacted the following important measures: An act authorizing the public service commission of the State to establish rates on railroads; a measure creating a legislative reference bureau for the assistance of legislators; a mothers' pension law; a family desertion act; a law creating a department of agriculture; laws to assist in the suppression of tuberculosis; a measure providing for medical inspection of pupils in public schools; an act limiting the hours of labor in certain occupations for women and minors to 11¼ hours per day and 55 hours per week; a measure establishing a board for the arbitration of labor disputes, an act providing for the primary election of delegates to constitutional conventions, and an enactment providing for the registration of foreign corporations doing business in the State.

State Government. *Governor, Samuel D. Felker, Democrat; Secretary of State, Edward N. Pearson, Republican; Treasurer, George E. Farrand, Democrat; Auditor, Frank A. Musgrove, Progressive; Adjutant-General, Herbert E. Tutherly, Progressive; Attorney-General, J. P. Tuttle, Republican; Superintendent of Public Instruction, Henry C. Morrison, Republican; Commissioner of Insurance, R. J. Merrill, Republican.

Judiciary. Supreme Court: Chief Justice, Frank N. Parsons, Republican; Associate Justices, Robert J. Peaslee, Democrat; Reuben E. Walker, Republican; John E. Young, Republican; one vacancy; Clerk, Arthur H. Chase, Republican.

State Legislature, 1913. Republicans: Senate, 12; House, 210; joint ballot, 222. Democrats: Senate, 8; House, 195; joint ballot, 203. Republican majority: Senate, 4; House, 15; joint ballot, 19.

The names of senators and representatives to Congress will be found in the article United States, section *Congress*.

NEW HEBRIDES. A group of Melanesian islands jointly administered by France and Great Britain through the French and English high commissioners for the Pacific. The seat of government is Vila, in the island of Efate. The British resident commissioner in 1913 was M. King; French resident-commissionership, vacant.

NEW JERSEY. Population. The population of the State in 1910 was 2,537,167. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 2,749,496.

Agriculture. The area, production, and value of the principal crops in 1913, are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	275,000	10,862,000	$8,146,000
	1912	273,000	10,274,000	7,054,000
Wheat	1913	80,000	1,408,000	1,352,000
	1912	79,000	1,462,000	1,433,000

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* Governor elected by legislature which convened January 1, 1913; November, 1912, election not conclusive.

		Acreage	Prod. Bu.	Value
Oats	1913	70,000	2,030,000	954,000
	1912	67,000	1,849,000	814,000
Rye	1913	70,000	1,260,000	1,008,000
	1912	72,000	1,260,000	995,000
Potatoes	1913	94,000	8,930,000	7,323,000
	1912	92,000	9,936,000	6,558,000
Hay	1913	361,000	[a] 469,000	8,911,000
	1912	362,000	521,000	10,420,000

[a] Tons.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $36,081,930, compared with $34,663,435 in 1911. New Jersey is one of the most important clay-working States of the Union. It is third in value of production, and second only to Pennsylvania in variety of products. It is second in value of pottery products, and fourth in the value of brick and tile products. The value of the clay products in 1912 was $19,838,503. Of this $10,902,633 were brick and tile, and $8,935,920 were pottery. This is an increase of nearly 10 per cent. over 1911. The leading clay product is sanitary ware. Common brick is second.

TRANSPORTATION. The total railway mileage in the State on January 1, 1913, was 5683 miles. Of this, first track comprised 2419 miles; second track, 928 miles; third track, 157 miles; fourth track, 140 miles; and sidings, 2037 miles.

EDUCATION. The total enrollment in the public schools in the school year 1913 was 478,935. The average daily attendance was 337,366. The number of teachers, male and female, was 14,275. The average yearly salary of teachers, both male and female, was $816.38.

CHARITIES AND CORRECTIONS. The institutions under State control with their populations in 1913 were: The State Hospital for the Insane at Morris Plains, 2302; State Hospital for the Insane at Trenton, 1543; State Home for the Feeble-Minded at Vineland, 247; New Jersey State Home for Epileptics, 392; New Jersey State Prison, 1527; New Jersey Reformatory, 505; State Home for Boys, 519; State Home for Girls, 226; Soldiers' Home at Kearney, 531; Soldiers' Home at Vineland, 348; Sanatorium for Tuberculous Diseases, 189. A reformatory for women at Clinton was opened January 1, 1913. It is equipped for 25 inmates, but new buildings will be erected to provide for the accommodation of more persons.

POLITICS AND GOVERNMENT. Woodrow Wilson continued to be governor of the State until March 1. On January 14 he sent to the legislature his last message, in which he urged many reforms. The most important of these concern the regulation of trusts, and for this purpose he recommended the passage of seven bills. One of his last important acts as governor was the affixing of his signature to these bills, which were promptly passed by the legislature. These will be found discussed at some length in the article TRUSTS. The passage of these measures fundamentally changed the position of New Jersey with regard to corporations. In past years the leniency of the laws of the State made it desirable for corporations which did not wish to be trammeled by severe restrictions to incorporate in that State. This condition was changed by the passage of these measures. They brought into effect the principle of resisting the modern tendency toward combination. Monopoly was specifically declared to be illegal, as is any combination or agreement to limit the production or increase the prices of merchandise; to prevent competition in making, transporting, or dealing in merchandise or any commodity; or to make any agreement or to arrive at any understanding by which there is prevented free or unrestricted competition among those who make the agreement or among any purchasers of their commodities. The forming of "holding companies" was prohibited. The amendment for the direct election of United State senators was ratified by the legislature, as was also the income tax amendment. In the latter part of February, Governor Wilson sent to the legislature recommendations for the passage of measures radically changing the method of selecting juries in the State. These measures, however, were not passed until after he had ceased to be governor. (See below.) On March 1 Governor Wilson retired, and was succeeded by James F. Fielder, who up to that time had been president of the Senate. The legislature on January 28 elected Edward E. Grosscup State treasurer, and William Hughes United States senator. Mr. Fielder was inaugurated governor on March 2. One of his first official actions was to call a special session of the legislature to consider the passage of the bills relating to jury reform. These measures had the support of Mr. Wilson, when he was governor, as noted above, and his interest in them did not cease on his inauguration as President. Indeed, when he ceased to be governor of the State, he declared that his interest in New Jersey affairs would continue, and if the necessity arose, he would not hesitate to take an active part in the political affairs of the State. Accordingly, he came from Washington to New Jersey on May 1, and on that day, and the day following, urged in conference and in public address that the legislature should pass the measures changing the system of selecting juries. These changes were opposed by certain men identified with machine politics in the Democratic party of the State. These men President Wilson severely arraigned in his addresses. His journey to New Jersey was interpreted as a resumption of the conflict with these elements which he had carried on as governor. A caucus of Democratic members of the legislature on May 5 voted to adopt the suggestions for compromise on the bill made by President Wilson, and on May 6 the legislature met in special session to vote. A deadlock in the Senate followed, but the Assembly passed the bill advocated by President Wilson with the addition of a referendum clause. On May 25 the bill, amended in certain details, passed the Senate, adding a condition which submitted the question to the people for final decision. On November 4, the jury reform law was approved, on referendum, by the voters. On July 22 Archibald C. Hart, Democrat, was elected to Congress from the sixth district to succeed Lewis J. Martin, deceased. Campaign for the nomination of governor of the State began in the summer. It was known that President Wilson favored the election of Mr. Fielder. H. Otto Wittpenn, Democrat, declared himself a candidate, but on July 26 made public a letter in which he announced his retirement as a result of a letter from President Wilson. Edward C. Stokes, former Republican governor of the State, was candidate for the Republican nomination and Everett Colby, for many years a leader in reform movements in the State, was a candidate for the Progressive nomination. Primary elections for nominations were held on September 23. These resulted in the nomination of Messrs. Fielder, Democrat, Stokes, Republican, and Colby, Progressive. State elections were held on November 4. These resulted in the election of James F. Fielder, Democrat, who received 173,148 votes; Edward C. Stokes, Republican, receiving 140,298, and Everett Colby, Progressive, 41,132. As a result of the election the Democrats retained control of the legislature, but with reduced majorities. Mr. Fielder resigned as Governor several days before the election, and Leon R. Taylor, speaker of the House, became acting governor. On April 15 the voters of Jersey City adopted a commission form of government.

Legislation. The legislature met in 1913, and in addition to the measures noted above, passed the following laws: A measure amending and supplementing the employers' liability act, anti-trust and anti-discrimination acts, a measure prohibiting corporations from acquiring stocks or securities from other corporations, a measure creating an employers' liability commission, several laws relating to highways, a measure amending the laws relating to juvenile courts, and an eight-hour law for workmen on public works. See also Liquor Regulation.

State Government. Governor, James F. Fielder, Dem.; Secretary of State, D. S. Crater, Dem.; Treasurer, Edward E. Grosscup, Dem.; Comptroller, Edward I. Edwards, Dem.; Attorney-General, Edmund Wilson, Rep,; Adjutant-General, Wilbur F. Sadler, Jr., Rep.; Commissioner of Education, Calvin N. Kendall, Dem.; Commissioner of Insurance, G. M. La Monte, Dem.

Judiciary. Supreme Court: Chief Justice, W. S. Gummere, Rep.; Justices, Charles W. Parker, Rep.; T. W. Trenchard, Rep.; Samuel Kalisch, Dem.; C. G. Garrison, Dem.; James J. Bergen, Dem.; Williard P. Voorhees, Rep.; James F. Minturn, Dem.; F. J. Swayze, Rep.; Clerk, William C. Gebhardt, Dem.

State Legislature, 1913. Republicans: Senate, 10; House, 23; joint ballot, 33. Democrats: Senate, 11; House, 37; joint ballot, 48. Democratic majority: Senate, 1; House, 14; joint ballot, 15.

The names of senators and representatives to Congress will be found in the article United States, section *Congress*.

NEW MEXICO. **Population.** The population of the State in 1910 was 327,301. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 370,185.

Agriculture. The area, population, and value of the principal crops in 1913, are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	85,000	1,572,000	$1,179,000
	1912	93,000	2,083,000	1,562,000
Wheat	1913	65,000	1,221,000	1,184,000
	1912	59,000	1,232,000	1,109,000
Oats	1913	50,000	1,500,000	900,000
	1912	53,000	1,839,000	828,000
Potatoes	1913	9,000	612,000	857,000
	1912	9,000	900,000	585,000
Hay	1913	192,000	399,000[a]	4,828,000
	1912	187,000	436,000	3,706,000

[a] Tons.

Mineral Production. The total value of the mineral products of the State in 1912, was $14,391,355, compared with $8,176,220 in 1911. According to the estimates of the United States Geological Survey, made in December, 1913, the production of metals in New Mexico in that year showed large increases over 1912. The mine production of gold showed an increase of $100,000. That of silver showed an increase of 100,000 ounces, of lead, a decrease of 800,000 pounds, of copper, an increase of 20,000,000 pounds, of zinc, an increase of 8,000,000 pounds. Despite lower average prices for copper and zinc, the total value in the output showed an increase for 1913 of over $3,000,000.

Considerable quantities of copper are produced in the State. The production of blister copper in 1912 was 29,170,400 pounds, a notable increase over that of 1911, which was 2,860,400 pounds. The large increase was due to the beginning of the important production by the Chino Copper Company, of the Santa Rita district. Up to the end of 1912, the State had a recorded output of 124,353,963 pounds of copper. The principal production has been from the districts in Grant County.

The total gold production of the State in 1912 was $784,446, against $762,808 in 1911. The greater part, $525,629, was produced in the Socorro County. Siliceous gold ores furnished $609,884, copper ores, $150,589, and placers, $16,926. The output from siliceous ores decreased in 1912, but that of copper ores increased largely, particularly in Grant County.

The output of silver in the State in 1912 was 1,536,701 fine ounces, compared with 1,354,540 in 1911. Socorro County produced 1,526,429 ounces in 1912, compared to 1,109,545 in 1911. The coal production of New Mexico in 1913 is estimated slightly in excess of that of 1912. It would have been considerably greater but for the disastrous explosion in October, which wrecked one of the mines of the Stag Canyon Fuel Company, and resulted in a loss of 263 lives and a decreased output. The total coal production of the State in 1912 was 3,536,824 short tons, valued at $5,037,051. This was an increase over the production of 1911, which was 3,148,158 tons, valued at $4,525,925. The output in 1912, the largest ever made, exceeded that of 1910, the previous record of production. Notwithstanding the increased production, there were fewer men employed in the coal mines in 1912 than in 1911. In the former year, the men employed numbered 3928, and the latter 4007. There were 15 fatal accidents in the coal mines of the State in 1912, compared with 21 in 1911. All the fatalities in 1912 occurred underground. There were no strikes in the coal mines of the State during the year.

Charities and Corrections. The charitable and correctional institutions under the control of the State include the New Mexico Insane Asylum, at Las Vegas, the New Mexico State Penitentiary, at Santa Fé, and the New Mexico Reform School, at Springer. There was also a deaf and dumb asylum at Santa Fé, and a minors' hospital at Raton.

Transportation. The total railway mileage in the State, on January 1, 1913, was 3060. The Atchison, Topeka, and Santa Fé has the largest mileage, 1194. The El Paso and Southwestern had 635; the Atchison, Topeka, and Santa Fé coast lines, 242; the Denver and Rio Grande, 217; the Southern Pacific, 167; and the New Mexico Central, 115. The El Paso and Southwestern system, constructed during 1913, has 13 miles of track in New Mexico, from White Water to Tyrone. The St. Louis, Rocky Mountain, and Pacific Railroad was purchased by the Atchison, Topeka, and Santa Fé system in 1913.

Education. The report of the superintendent of education is for the biennial period 1911-12. The enrollment in 1912 was 61,027, with an average daily attendance of 40,018. There were 1088 women teachers, and 510 male teachers. The average monthly salary of men teachers was $60.41, and of women, $66.72. The total expenditures for public, elementary, and high schools was $954,407. In the Indian schools of the State, there were enrolled 2085 pupils, and in the private and sectarian schools 4052. There were about 30 government Indian schools operated in the State. The State institutions of higher learning are the University of New Mexico, the New Mexico College of Agriculture and Mechanic Arts, the New Mexico School of Mines, the New Mexico Military Institute, the New Mexico Normal University, the Normal School at Silver City, the Spanish-American Normal School at El Rito. In addition there are schools for the blind, deaf, and dumb.

Politics and Government. There was no election for State officers during the year, as the terms of Governor McDonald and the other State officials do not expire until December 31, 1915. The next State election will be held on November 3, 1914. The legislature ratified the income tax amendment on February 3. On January 28 the legislature reëlected A. B. Fall United States senator.

Legislation. The legislature met in 1913, and passed four important measures. These were a white slave law, a local option law, a measure providing for a commission form of government for cities, and a comprehensive act relating to weights and measures. See also Liquor Regulation.

State Government. Governor, William C. McDonald, Dem.; Lieutenant-Governor, E. C. de Baca, Dem.; Secretary of State, Antonio Lucero, Dem.; Treasurer, O. N. Marron, Dem.; Auditor, William G. Sargent, Rep.; Attorney-General, Frank W. Clancy, Rep.; Superintendent of Education, Alvan N. White, Dem.

Judiciary. Supreme Court: Chief Justice, Clarence J. Roberts, Rep.; Associate Justices, Richard H. Hanna, Prog.; and Frank W. Parker, Rep.; Clerk, José D. Sena, Rep.

State Legislature, 1913. Republicans: Senate, 15; House, 29; joint ballot, 44. Democrats: Senate, 7; House, 17; joint ballot, 24. Progressives: Senate, 2; House, 3; joint ballot, 5. Republican majority: Senate, 6; House, 9; joint ballot, 15.

The names of senators and representatives to Congress will be found in the article United States, section *Congress*.

NEW ORLEANS, Southern States Exposition at. See Expositions.

NEW SOUTH WALES. A state of the Commonwealth of Australia. Area (exclusive of the Federal Capital Territory), 309,460 sq. miles. Population (census of April 3, 1911), 1,646,734, exclusive of full-blooded aboriginals. Sydney is the capital and the largest city in Australia. Population (1911), 107,133; population of the local government area, 112,921; with suburbs, 629,503. Governor, in 1913, Sir Gerald Strickland (appointed in 1912). Premier, W. A. Holman. (See Australia.) The latest reports available of railway progress in this state in 1913, indicated that over 100 miles had been opened, of which 83 miles formed part of the Main North Coast Line, while there were under construction 534 miles, including 110 miles for the North Coast Railway, and 8 other lines in the various districts, many of which were light line extension and branches. The report stated that about 3930 miles were in operation in the state.

History. In June, the state government underwent a change of *personnel*, but not of party. Mr. McGowan, the Labor leader and premier, was succeeded by his colleague, Atty-Gen. W. A. Holman. In the new cabinet, Mr. McGowan consented to take a subordinate place as minister of labor and industry, and other portfolios were distributed as follows: Public works, Mr. Griffith; colonial treasury, Mr. Cann; colonial secretariat, Mr. Flowers; lands, Mr. Trefle; justice, Mr. Hall; education, Mr. Carmichael; mines, Mr. Edden. The Opposition moved its usual vote of censure, but was disregarded by the ministry. A full legislative schedule was announced in the speech from the throne on July 22, including measures for a super-tax on large estates, model suburbs, rent regulation, the protection of deserted wives and children, an eight-hour working day, mining acts, workingmen's compensation, and a minimum wage law. In the stormy parliamentary session that ensued, most of these measures were rushed through the Legislative Assembly, only to be rejected by the Legislative Council. A bill consolidating the land laws of the state passed both houses. The state elections in December gave the government an increased majority in the new assembly, which was composed of 50 Labor members (gain, 4), 38 Liberals (loss, 1), and 2 Independents (loss, 3). Parliament met on December 23, to vote a three-months' supply bill and then adjourned to March, 1914. The government house at Sydney, recently withdrawn from the use of the Australian governor-general, was converted into an art museum. A new railway, constructed by the state and opened in April, rendered the extensive Manning River district accessible to settlers.

NEW YORK. Population. The population of the State in 1910 was 9,113,614. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 9,712,954.

Agriculture. The area, production, and value of the principal crops in 1912-13, are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	527,000	15,020,000	$12,186,000
	1912	512,000	19,763,000	13,834,000
Wheat	1913	340,000	6,800,000	6,324,000
	1912	335,000	5,360,000	5,306,000
Oats	1913	1,275,000	42,712,000	20,075,000
	1912	1,192,000	36,714,000	15,420,000
Rye	1913	133,000	2,288,000	1,716,000
	1912	128,000	2,112,000	1,605,000
Potatoes ...	1913	360,000	26,640,000	21,312,000
	1912	360,000	38,160,000	22,133,000
Hay	1913	4,700,000	*a* 5,358,000	81,977,000
	1912	4,720,000	5,900,000	87,910,000
Tobacco	1913	4,300	*b* 4,386,000	535,000
	1912	4,000	5,200,000	655,000

a Tons. *b* Pounds.

Mineral Production. The total value of the mineral products of the State in 1912 was $38,406,473, compared with $34,317,594 in 1911. New York ranks fourth among the States in production of iron ore. There were mined in 1912, 1,116,272 long tons, compared with 1,061,279 long tons in 1911. The pig iron production, in which the State also ranks fourth, was 1,939,231 long tons in 1912, compared with 1,562,756 in 1911. New York is the fifth State in the value of clay products. The value of these in 1912 was $12,058,858. Of these, $9,653,326 were in brick and tile, and $2,405,532 in pottery. Common brick was the principal clay product. The production of petroleum in the State in 1912 was 874,128 barrels, compared with 952,515 barrels in 1911. The production in the State had decreased every year for many years, and the yield was so small that even the increase in price had not stimulated much drilling of new wells.

Transportation. The total mileage of first track railroad operated in the State on June 30, 1913, was 8405.07 miles. Outside of New York City, there were 1981.09 miles of electric railway. There was a very small construction of railway mileage in 1913. The electric railways within New York City had a mileage of 1561 miles. Of this, 261 miles were in Manhattan; 568 in Brooklyn; 203 in the Bronx; and 207 in Queens. The number of passengers carried on these lines was 1,769,889,284. The total transportation revenue was $88,353,613.

Finance. The report of the treasury for the fiscal year ending September 30, 1913, showed a balance at the beginning of the year of $35,882,937. The receipts for the fiscal year were $107,763,064, and the disbursements $101,495,444, leaving a balance, on October 1, 1913, of $42,150,557. The chief sources of revenue are the inheritance tax, the corporation tax, State tax, excise tax, and automobile licenses, and the chief disbursements are for the barge canal, State institutions, State officers, agriculture, and the national guard.

Education. The total school population of the State for the school year ending July 31, 1912, was 2,143,585. The total enrollment was 1,442,139. In addition, there were 15,252 persons over 18 years of age enrolled. The average daily attendance in the schools was 1,164,992. The teachers employed numbered 44,193. The average yearly salary of teachers in the State was $888.50.

Politics and Government. The political record of the State during 1913 was one of the most remarkable in its history. It included the inauguration of a new governor, who attempted to pass important bills through a hostile legislature and failed; the impeachment and removal from office of the governor; and his subsequent election as a member of the Assembly. It included, too, an unparalleled number of investigations into the management of State departments and institutions.

William Sulzer, until his election as governor in 1912, a representative to Congress from the State, was inaugurated on January 1. His inaugural address was awaited with considerable interest, as it was believed that he would make some suggestions for legislation of a rather radical nature. This was to some extent realized. He first urged the ratification of the proposed amendment, providing for the popular election of United States senators. In this connection he said: "If the people cannot be trusted, then our government is a failure and the free institutions of the fathers are doomed." He recommended to the legislature in general terms that action should be taken to reduce the cost of the necessaries of life. More specific were his recommendations in regard to the question of wages and the betterment of the condition of employes. He said: "We must now convince employers that any industry that saps the vitality and destroys the initiative of the workers is detrimental to the best interests of the State and menaces the general welfare of the government." He urged enforcement of compulsory education, together with restrictions upon child labor. He emphatically repudiated the necessity of employing children and declared that no commerce that depended upon child labor for its success had a right to exist. Perhaps the most important of his recommendations was that of a minimum wage law. In this connection he said: "To secure for those less accustomed to the competitive struggle, protection that other workers have won for themselves through organization, we should carefully consider the establishment of wage boards, with authority to fix a living wage for conditions of work below which standards no industry should be allowed to continue its operations." His other recommendations included means for the conservation of the natural resources of the State, a reform in civil and criminal law, measures for the promotion of agriculture and good roads, and the enforcement of the principle of home rule in cities.

All political parties in the State had, in 1912, included in their platform declarations in favor of a direct primary law. An attempt to pass such a law had been one of the chief concerns of Governor Hughes, but he was obliged to leave office without having achieved his purpose. A primary election law, which was satisfactory neither to the advocates nor opponents of the direct primaries, was passed by the legislature in 1911. It was known that Governor Sulzer was heartily in favor of a thoroughgoing direct primaries measure, and it was in connection with attempts to pass such a measure that he first came into direct conflict with the State legislature, which was controlled by the Democratic machine in New York City. Early in April, the governor sent a message to the legislature in favor of such a measure. Following this action he met in conference representatives of all three parties—the Democratic, Republican, and Progressive—in order to arrange for their support for the measure which he wished to pass. In spite of his efforts, however, the legislature defeated the bills favored by him by a large majority, and passed in their places a substitute which the governor promptly vetoed, with a message declaring that the bill was an insult to the intelligence of the New York electorate, and that it was his intention to begin a campaign throughout the State for the passage of such legislation as he wished. On May 3, the legislature came to an end, having failed to pass satisfactory primary measures of any sort. Governor Sulzer then began a campaign throughout the State for the purpose of raising the support for his primary measures. In this he was assisted not only by the Democrats, but by Progressive Republicans, who were heartily in favor of his measures. Theodore Roosevelt wrote a letter to the governor in which he promised his hearty coöperation and assistance in passing bills through the legislature.

During the session of the legislature, there had been indications that unfriendly relations existed between the governor and those in control of the Democratic machine in New York city, and who also controlled the State organization. In a speech delivered on March 26, the governor declared his independence of Tammany Hall. He was bitterly attacked, both inside and outside the legislature, and various charges were brought against him in the press. These included an assertion that he had been partly responsible for concessions granted to Americans in Guatemala while he was a member of Congress, that a suit had been brought against him in former years in Vermont for a fee unfairly exacted in a lawsuit, and other charges of a similar nature, referring chiefly to his personal character. All these charges Governor Sulzer denied.

In his campaign for the primary measures, he made addresses in Buffalo, Elmira, and other cities of the State, including New York City. He concluded the campaign in the latter city on June 15, with a bitter attack on the Democratic bosses. On June 17, an extraordinary session of the legislature called by him to act again upon these measures again took session. On June 25, the Assembly voted against the bill 54 to 92, and on the following day the Senate defeated it by a vote of 38 to 10.

About this time rumors began to be published regarding the use of campaign funds which had been collected for the campaign in which Governor Sulzer had been elected. Charges were also published to the effect that he had been interested in contracts in Cuba, and that legislation had been passed through Congress largely through his efforts to benefit contractors who were engaged in constructing public works in Cuba.

A committee of the State Senate, headed by Senator Frawley, was appointed to investigate the charges relating to campaign contributions. Governor Sulzer denied the legality of this committee, and challenged its powers. It continued, however, to hold sessions and examined witnesses. Governor Sulzer's transactions in the stock exchange were examined into, and it was shown that he had turned over to a firm of stock brokers many checks which had been received for campaign contributions. On August 10 Governor Sulzer issued a denial of the charges in which he declared that he did not use campaign contributions for personal use or speculation. On August 12 a resolution for the impeachment of the governor was introduced in the Assembly, and on the following day this resolution was passed by a vote of 79 to 45. There were eight articles of impeachment, and in substance they were as follows:

That Governor Sulzer filed with the secretary of State a false statement of his receipts and other monetary transactions involved in his campaign for governor.

That he committed perjury in this statement to the secretary of State relative to his campaign receipts and expenditures.

That he bribed witnesses to withhold testimony from the legislative committee, which investigated his campaign expenditures and receipts.

That he suppressed evidence by means of threats, to keep witnesses from testifying before the legislative and investigating committee.

That he prevented and dissuaded a particular witness from attending, under subpœna, the sessions of the investigating committee.

That he committed larceny in speculating in stocks with money and checks contributed for his campaign.

That as governor, he threatened to use his office and influence to affect the vote or political action of certain public officers.

That while governor he corruptly used his authority or influence to affect the current prices of securities on the New York Stock Exchange in some of which securities he was at the time interested.

Governor Sulzer refused to acknowledge the power of a legislature called in extraordinary session to act on articles of impeachment, and he declared that he would not resign office during the impeachment trial.

The court of impeachment met on September 18. It included the members of the Senate and the judges of the Court of Appeals. There were present at the opening of the trial 48 senators—31 Democrats, and 17 Republicans, and 9 judges of the Court of Appeals. The counsel who advocated Governor Sulzer were D. Cady Herrick, Irving G. Vann, Harvey D. Hinman, Austen G. Fox, Louis Marshall, Roger P. Clark, Elihu Root, Jr., and James Gay Gordon. The counsel for the prosecution of the governor were Alton B. Parker, John B. Stanchfield, Edgar T. Brackett, Eugene Lamb Richards, Hiram C. Todd, and Henderson Peck. Mr. Herrick, at the opening of the trial, objected on behalf of the governor to the presence of 4 senators who had been members of the committee which had reported for the impeachment. The court decided that these senators should be allowed to remain. The court of impeachment on September 22, by vote of 50 to 1, decided that the Assembly, at its extraordinary session, had the power to impeach the governor.

After remaining in session until October 16, and hearing a large number of witnesses, the court found Governor Sulzer guilty of three of the eight articles of impeachment. These were articles making accusations of falsifying election returns, of perjury in declaring that his statement was true, and an article charging him with practicing deceit and fraud and using threats and menaces to suppress testimony desired by the Frawley committee. All the judges voted for the impeachment except Judge Cullen, the chief judge of the Court of Appeals. He explained his vote as follows: "I find that the respondent did take advantage of his nomination and candidacy for office to seek to personally enrich himself by diverting the contributions which he might receive for campaign purposes. I find that he did verify that by his oath, knowing it to be false. At the same time I shall vote not guilty of these articles for reasons which seem to me to dictate such a course, whatever may be my personal opinion of the acts done and committed by this respondent. . . . The use of this money for his own purpose other than political work was not an offense. On the contrary, it is very doubtful whether it was not within his legal right to use it for any purpose to which he saw fit. . . .

As to his filing a false certificate, in my opinion, it is a matter of law that the corrupt practices act, now a part of the election law, did require him to state the amounts and sources of all election contributions, and in my judgment nearly all, possibly with two or three exceptions, of the moneys paid to him were such contributions. I find, however, this: That his oath to the truth of his statement was extra-judicial, as far as it related to his receipts. The election law does not require that that statement should contain the receipts of the party making the statement. It is, therefore, plainly extra-judicial to the oath and is elementary law. . . . I am frank to say that if these acts had been committed during his incumbency of office, I should have regarded his moral offense great enough to require his removal, but I am of the opinion that it cannot be considered as ground for impeachment and that it would be an eminently dangerous doctrine to treat them as such."

On October 18 the court voted to remove Governor Sulzer from office. It was agreed that he would not be disbarred from holding future office.

Until September 23 Governor Sulzer continued to assert his right to act as governor. This was disputed by Lieutenant-Governor Glynn, and from September 18 to that date both men acted as governors in different parts of the Capitol. Following the removal of Governor Sulzer, Mr. Glynn was sworn in as governor. Two days after his removal from office Mr. Sulzer was nominated for the Assembly on the Progressive ticket, in a New York City district. In the election, held on November 4, he was elected.

On December 8 Governor Glynn called the legislature in another special session and recommended legislation providing for the Massachusetts form of ballot, the direct primary law abolishing State conventions, and a workmen's compensation law. These measures passed both houses by an almost unanimous vote. Other measures passed provided for a constitutional convention to be held April, 1915, and passed a measure putting into effect the constitutional amendment for the direct election of United States senators. In addition to these laws the legislature passed an important workmen's compensation act. See WORKMEN'S COMPENSATION.

Reference was made at the beginning of these paragraphs to a number of investigations undertaken during the year. Most of these were set on foot by Governor Sulzer and were continued by Governor Glynn. The latter also began other investigations. Among the departments in which examination was held were the State. architect's office, the executive department, the department of highways, the banking department, the department of prisons, and other State departments. In nearly all cases where investigations were carried on, conditions of corruption or mismanagement were found. In particular, evil conditions were found to exist in some of the State prisons, especially the Sing Sing prison.

As a result of charges brought against State Senator Stephen J. Stilwell, he was found guilty of bribery on May 24, and was sentenced to State prison.

The State elections on November 4 were for members of the legislature and members of the Court of Appeals, and municipal officers. The vote for the chief justice of the Court of Appeals was so close that a recount was necessary. This resulted in the election of William E. Werner, Republican. Frank H. Hiscock, Republican, was elected associate justice. The Republicans made gains in the legislature, which resulted in the Democrats losing control of that body. Of 46 Democrats who voted to impeach Governor Sulzer and who stood for reëlection, 29 were defeated. The cities of Albany, Binghamton, Rochester, and Poughkeepsie elected Republican mayors; Buffalo, Troy, and Utica elected Democrats, and Syracuse, Progressive. In Schenectady, Mayor Lunn, Socialist mayor, was defeated by a Fusion candidate. Constitutional amendments removing obstacles to a liberal workmen's compensation act and permitting excess condemnation in making public improvements were passed. Particulars of the election in New York City are given below.

NEW YORK CITY. In New York City the year was marked with many important political and civic events. The results of the revelations of corruption in the police department in 1912 continued to be felt, and in March the aldermanic committee which had been holding hearings on police conditions made a preliminary report, with recommendations for legislation. Its first recommendation was for a larger measure of home rule in respect both to the enactment and the enforcement of the regulations under which the people of the city live. It further recommended that responsibility for the administration of the police be concentrated. The committee recommended that the police commissioner be appointed by the mayor for a term of eight years, and be removable by the governor or mayor, only upon charges. These charges might be preferred either by the mayor, the board of estimate and apportionment, or the board of aldermen. The other recommendations with regard to the organization of the police were in accordance with the principle that there should be no division of responsibility. The committee expressed its opposition to a suggestion that corruption in the police department could be eliminated by the creation of a special department or board to deal with vice. This, it declared, would simply turn corruption from one direction into another, with an actual loss of efficiency. On May 6, four former inspectors of the New York police force were convicted for conspiring to prevent a witness in testifying against the police graft system.

The campaign for the election of a new mayor in November was begun early in the year. Mayor Gaynor, who had served for four years and was elected on a Tammany or Democratic ticket, was a candidate for reëlection, but the Tammany Hall leaders refused him the renomination. On September 3 he was renominated at an Independent mass meeting held on the steps of the City Hall. The opponents to Tammany Hall including the Republican and Independent organizations formed a committee of seven to select candidates for mayor and other city officers. Their final choice was John Purroy Mitchel, president of the Board of Aldermen. The Democrats nominated Judge Edward E. McCall, who had been appointed chairman of the Public Service Commission by Governor Sulzer. The campaign which followed these nominations was one of the most aggressive and bitter in the political history of the city. The

Courtesy of *Review of Reviews*

WILLIAM J. GAYNOR

Mayor of New York, died September 10, 1913

Courtesy of *Review of Reviews*

JOHN PURROY MITCHELL

Elected Mayor of New York November 4, 1913

NEW YORK

death of Mayor Gaynor on September 10 removed him as a candidate, and greatly increased the chances of Mr. Mitchel. Of particular interest were the speeches made by John E. Hennessey, who had acted as an investigator in various State departments by appointment of Governor Sulzer. He assailed Tammany Hall and its leaders in a series of fiery speeches in which he made plain charges of corruption. He claimed that the downfall of Governor Sulzer had been directly due to the enmity of Tammany Hall leaders which he had incurred as a result of his opposition to their efforts to dictate the policy of his administration.

The election of November 4 resulted in the most decisive defeat which Tammany Hall has suffered in its history. Mitchel, the Fusion candidate, received a plurality of over 120,000 votes, the largest on record. The entire Fusion city and county ticket, with minor exceptions, was elected. All the members of the Board of Estimate and Apportionment, the actual governing board of the city, were elected on the Fusion ticket, with the exception of the president of the Borough of Queens, who was elected by the Democrats. This gave the Fusionists 14 of the 16 votes of that board. Directly after the election, there was a movement to further cripple the Tammany organization and to deprive it of all power in politics. This was understood to have the approval of President Wilson and other members of his Cabinet. George W. Loft and Jacob A. Cantor were elected members of Congress to fill vacant seats.

On May 10 a memorial statue of Carl Schurz was unveiled with appropriate ceremonies. Contracts for the new subway system continued to be made during the year. A full discussion of the subway will be found in the article Rapid Transit. The borough of the Bronx was created into a new county by the legislature of 1913. It had heretofore been joined with Manhattan.

Legislation. The legislature met in 1913. In addition to its activities noted above, it passed many important measures. Among them were the following: Several laws relating to safety of factories, etc., fire prevention, employment of women and children, the hours of labor for railroad employes and other classes of employment. An eight-hour law for workmen on public works was passed and provision was made that eight hours shall constitute a legal day's work in all classes of private employment except farm and domestic services. The law does not, however, prohibit contracts of private employment for a longer day for an increased consideration. A measure was enacted, restricting the hours of labor for women and minors under 16 to 54 hours a week in certain employments. Several amendments as to the making of articles in tenements were made to the existing labor law. The conservation law providing for the conservation of waters, forests, fish, and game, was amended. The tenement house law was amended so as to impose additional restrictions on the erection of such houses. Additional legislation relating to vocational and industrial education in public schools was enacted, a medical inspection of pupils in public schools was provided for. A vital statistics act was passed which placed that subject under the State department of health. Several measures were enacted aiming at curbing existing evils in connection with stock speculation and the operation of stock exchanges. These laws place restrictions on the manner in which brokers shall deal with orders from customers, and prohibiting false representations concerning securities, deception of the public by wash sales, and the manipulation of markets. An anti-bucket shop law was enacted as was a loan-shark law. The latter creates the office of a supervisor of small loans, and fixes the maximum rate of interest at 3 per cent. per month. A commission to investigate the subject of pensions for widowed mothers was created. An act was passed regulating the sale of cocaine. Provision was made that when the constitutionality of a statute is brought in question on the trial of any case, the court may make an order directing notice thereof to be given the attorney-general, who may be permitted to appear in court in support of the constitutionality of the statute. A State commission for improving the condition of the blind was established, and a State board of estimate for the purpose of preparing the annual State budget was created. A measure was enacted creating a department of efficiency and economy in the public service. A commission was appointed to make preparations for the celebration of the 300th anniversary of the beginning of the regularly chartered commerce of what is now the State of New York, under the auspices of the States-General of the United Netherlands, in the year 1614. All limitations on the holding and disposing of real property by aliens were removed, and they are placed on a par in this respect with native-born citizens. A State labor department was reorganized. A board of statutory consolidation was created and was authorized to prepare and present to the legislature a practice act, rules of court, and short forms, as recommended by the board in its report to the legislature of 1913. See also Liquor Regulation.

State Government. Governor, Martin H. Glynn, Albany; Lieutenant-Governor, Robert F. Wagner, New York; Secretary to Governor, Frank A. Tierney, Albany; Secretary of State, Mitchell May, New York; Comptroller, William Sohmer, New York; State Treasurer, John J. Kennedy, Buffalo; Attorney-General, Thomas Carmody, Penn Yan; State Engineer and Surveyor, John A. Bensel, New York; Superintendent of Insurance, William T. Emmet, New York; Superintendent Banking Department, George C. Van Tuyl, Jr., Albany; Superintendent State Prisons, John B. Riley, Plattsburg; Superintendent Public Works, Duncan W. Peck, Syracuse; State Fire Marshal, Thomas J. Ahearn, New York; Commissioner of Education, John H. Finley, New York.

Legislature, 1913. Democrats: Senate, 32; Assembly, 48; joint ballot, 80. Republicans: Senate, 17; Assembly, 79; joint ballot, 96. Independent Democrats: Senate, 1; Assembly, 2; joint ballot, 3. Progressive Republican: Senate, 1; joint ballot, 1. Progressives: Assembly, 19; joint ballot, 19. Progressive Democrat: Assembly, 1; joint ballot, 1. Independent: Assembly, 1; joint ballot, 1.

The names of senators and representatives to Congress will be found in the article United States, section *Congress.*

NEW YORK AQUEDUCT. See Aqueducts.

NEW YORK CITY. See Architecture; City Planning; New York, section *New York City.*

NEW YORK SUBWAYS. See RAPID TRANSIT.

NEW YORK UNIVERSITY. An institution of higher education in New York City, founded in 1831. The enrollment in all departments of the university in the autumn of 1913 was 5030. The faculty numbered 460. Dr. Lyman P. Powell, professor of business ethics, resigned to become president of Hobart College. The university appointed a substitute trustee under the Theodore Greeley White fund, for the support of work among men and boys on the west side of New York City. The income of the university in 1912-13 was $1,370,450. The library contains 110,000 volumes. The president is Elmer Ellsworth Brown.

NEW ZEALAND, DOMINION OF. An autonomous British dependency, composed of three principal and four smaller southern Pacific islands, with annexed groups of small islands and islets, many practically useless for settlement. The table below shows area, European population for comparative census years, and Maori population, 1911 census.

	Sq. m.	Pop. 1901	Pop. 1911	Maoris
North Island....	44,648	390,571	563,729	46,632
South "	58,525	381,661	444,120	2,681
Stewart "	665	272	357	63
Total N. Z.....	103,658	772,504	1,008,206	49,376
Chatham Islands	375	207	258	219
Kermadec "	13	8	4	249*
Total	104,046	772,719	1,008,468	49,844

* Maori wives of Europeans (enumerated in European census) scattered among the various islands.

Total area inclusive of outlying islands, (with the Cook and other groups), 104,751 sq. miles. The total population in 1881 was 489,933, exclusive of Maoris; 1871, 256,393; 1861, 99,021; 1858, 59,413. In 1911 the rural population numbered 496,779, or 49.26 per cent. of the total: the borough population, 505,598, or 50.14 per cent. In the rural population are included inhabitants of towns not constituted municipal boroughs, while with the urban population are classed persons in outlying districts who frequently follow agricultural pursuits. Remaining population is accounted for by number of persons on shipboard, railways, and in adjacent islands not included in any county or borough. The city of Auckland had (1911) 40,536 inhabitants, 102,676 with suburbs; Wellington (the capital), 64,372 and 70,729; Christchurch, 53,116 and 80,193; Dunedin, 41,529 and 64,237; Invercargill, 12,782 and 15,858; Wanganui, 10,929 and 14,702; Napier, 10,537 and 11,736; Timaru, 11,280; Palmerston North, 10,991; Gisborne, 8196.

Of the total population (1911), of all races (1,058,312), 558,385 were males, 499,927 females. Population of Cook and other annexed Pacific islands, 12,598 (6449 males and 6149 females). Total population of New Zealand proper, (North, South, and Stewart islands), the dependencies (Chatham and Kermadec groups), and of Cook and other annexed Pacific islands, 1,070,910. Average per square mile, 9690 (7427 in 1901; 4693 in 1881; 1641 in 1864). Protestants are greatly in the majority and of these the predominant church is the Church of England, with 413,842 adherents (or 41.14 per cent. of the whole); the Presbyterian next, with 234,662. Persons classed as actively engaged in agricultural pursuits numbered 130,581 (exclusive of dependents); among these are included those occupied in mines and quarries 14,775, and in fisheries 925; in pastoral pursuits 55,287; in soil cultivation, etc., 54,738; in forestry, or the acquisition of raw products yielded by natural vegetation, 3376; in water-conservation, 389. Persons actively engaged in industrial pursuits, 133,555; commercial, 65,762; domestic, 44,267; transport and communication, 36,433; professional, 32,716; various, 10,803; not stated, 300. Non-breadwinners (dependent wives and children, etc., and persons supported by public or private charity), 554,051.

AGRICULTURE. Under occupation in 1910-11 40,238,126 acres, as follows: 1,015,822 under cereals and pulse, under green crops 713,682—a total under crops of 1,729,504 acres; 5,000,226 acres in sown grasses on plowed land, and 9,214,515 on land not plowed; 23,972,236 in native grass and unimproved land; 209,973 fallow; 780 in vineyards. Under wheat in 1912-13, 76,836 hectares (provisional figures from 1913-14, 67,582 hectares), barley, 15,170 (12,950), oats 156,525 (146,494), corn 1895 (2428). The livestock census for 1911 returned 23,996,126 sheep (of which the Maoris owned 486,922), 2,020,171 cattle (61,300), 404,284 horses (48,222), 348,754 swine (33,290).

Leading products and exports are wool, frozen meat, preserved and salt meats, smoked hams, frozen fish, dairy products, etc. There are extensive coal mines and rich gold fields. Coal output in 1910, 2,197,362 tons, valued at £1,219,737; gold, 478,288 oz., valued at £1,896,328; silver, 1,711,235 oz., valued at £171,562.

COMMERCE AND COMMUNICATIONS. In the table below is shown the trade with the United Kingdom, the colonies, other countries, and totals for three years:

	1909	1910	1911
Imports:			
U. K..........	£ 9,287,786	£10,498,771	£11,787,300
Colonies	4,267,176	3,967,058	4,710,040
Other	2,119,757	2,585,759	3,048,539
Total	£15,674,719	£17,051,588	£19,545,879
Exports:			
U. K..........	£16,193,188	£18,633,118	£15,134,743
Colonies	2,449,691	2,468,119	2,966,952
Other	1,019,117	1,078,972	926,795
Total	£19,661,996	£22,180,209	£19,028,490

Value of the wool, 1911 export, £6,491,707; frozen meat, £3,503,406 (wool £8,308,410, frozen meat £3,850,777 in 1910). Total shipping entered and cleared, 2,949,780 tons, of which 2,855,862 tons British.

There were in operation in the Dominion March 31, 1912, 2798 miles of government and 29 of private railway; under construction by the government, 242 miles. The principal railway construction of the year was the Toko-Stratford line connecting the west coast with the main line of the North Island, and the Napier-Gisborne and the Picton-Flaxmere lines. Six short lines, aggregating 52½ miles, were opened during the year and grade reductions and improvements were in progress. The construction of the Otira Tunnel was undertaken by the government, as the contractors failed to complete the work. Miles of telegraph line, 11,805; wires, 39,370. A scheme is in process of development for utilizing the water power at Lake Coleridge in the generation of electric power to be transmitted to Christchurch for lighting, railway (including street), industrial, and manufacturing purposes.

Army. The principle of compulsory military training, inaugurated by the terms of the defense act of 1909 and extended by later supplementary legislation, has been vigorously and persistently put in practice. The aim of this legislation was to secure more thorough training and to make it of a kind to harmonize with that adopted by the neighboring military forces of Australia. The New Zealand plan includes drill and general training for junior cadets of from 12 to 14 years of age, for senior cadets of from 15 to 18 years of age, and for adult territorial recruits. The intention is to develop eventually a force of 65,000 men of from 19 to 25 years of age. Throughout 1913 the reorganization of the forces was progressing satisfactorily on the whole, in spite of difficulties with recalcitrants akin to those experienced in Australia. The plan above referred to calls for a staff corps of 100 officers. To secure the proper training, the New Zealand officers were attached to the imperial forces.

Navy. Built for the imperial navy at the cost of the Dominion was the battle cruiser *New Zealand*, completed early in 1913. She left Portsmouth, February 6, 1913, on her maiden voyage to New Zealand, where she remained for three months, returning to England, *via* Vancouver and the West Indies, in November.

Finance, etc. In the table below are shown financial statistics for succeeding years:

	1909-10*	1910-11*	1911-12
Revenue..........	£9,238,917	£10,297,023	£11,032,544
Expenditure......	8,990,922	9,343,106	10,340,368

* Financial year ending March 31.

Gross public debt March 31, 1912, £84,353,913; accrued sinking fund, £2,160,603; net debt, £82,193,310.

Arthur Foljambe, Earl of Liverpool, was governor in 1913.

History. Mr George Massey's "Reform" government, which came into power in July, 1912, was twice thwarted in its endeavor to reform the Legislative Council. Its Legislative Council elections bill of 1912 was rejected by the Legislative Council, as noted in the 1912 Year Book. In 1913 a new Legislative Council bill was introduced, having in common with its predecessor the provision that the legislative councilors, at present appointed by the government, should be elected by popular suffrage with proportional representation. Each of the two islands was to be divided into two constituencies with representation proportionate to population, the northern island returning 22 councilors and the southern 18. The Legislative Council conceded that its members should be elected, but not by direct popular suffrage. The obstinacy of the upper chamber made it impossible to pass the bill at present; but by next session the terms of 15 Liberal councilors will have expired and if "Reformers," are appointed to fill the vacant seats, the bill may then be carried.

The session of the General Assembly, which lasted from June to December 15, was by no means exclusively occupied with the discussion of constitutional reform; in addition it enacted a naval law, a land law, a native land law, a law for the repeal of second ballots, and a labor dispute law. The land law authorized the minister of lands to borrow £500,000 for land-purchase and £100,000 for road-construction; provision was made for the extensive conversion of crown land into freehold, reserving minerals to the crown; landowners might be compelled to divide unimproved land; and safeguards were enacted against the aggregation of large landed estates. In his budget speech on August 6, Mr. Allen promised that "so soon as details are settled, the government will submit to Parliament a policy which will recognize to the full the necessity for *one control for imperial purposes*" of whatever warships might be constructed at the Dominion's expense. The government was anxious to secure adequate naval protection for New Zealand and a greater participation by New Zealand in the work of defense, yet was reluctant to follow Australia's lead in constructing a separate naval unit. The defense estimates amounted to £505,000. Under the defense act, 52,000 recruits had been enlisted, but there had been a large number of defaulters from compulsory military service, 3100 of whom were convicted. The "inhuman" treatment of such defaulters was deprecated by a deputation of the Labor Congress, but Colonel Allen denied the justice of the complaint. The organized labor movement, exceptionally strong in New Zealand, entered on a new phase in 1913, when the "Labor Unity Congress" in July, representing over 50,000 workers, gave birth to two new organizations; the Social Democratic Party and the United Federation of Labor. The former is the successor of the United Labor Party of New Zealand which was formed at Easter, 1912, and aims through political propaganda to secure Socialistic legislation. Among other measures, it demands the enactment of a Right-to-Work Law providing for a minimum wage and a maximum working day of six hours; the non-interference of the army in industrial disputes was also desired. The United Federation of Labor was a purely industrial organization, the enlargement of the New Zealand Federation of Labor. It is a federation of local trade unions, with a national executive consisting of four officers elected by *plébiscite* of the United Federation, together with representatives of each of the ten national industrial departments (mines, railways, etc.); all officers are subject to recall or instruction by *plébiscite*. A trial of the new organization took place in October, when a general strike paralyzed industry and made it necessary to land British marines at Auckland and at Wellington. In order to prevent illegal strikes in the future the premier introduced an arbitration bill imposing fines of £10 on workmen and £500 on employers who should disobey arbitration decisions. The stringent anti-trust laws were upheld by the Court of Appeals in the case of the sugar trust.

NICARAGUA. A Central American republic, between Honduras on the north and Costa Rica on the south. The capital is Managua.

Area and Population. The estimated area is 49,552 square miles, slightly more than the area of the State of New York. The population, which is largely Indian and mestizo, is estimated at 600,000. There is a very small proportion of pure whites in the country. The larger towns are: León, with about 63,000 inhabitants; Managua, 40,000; Granada, 25,000; Matagalpa, 16,000; Bluefields and Masaya, 15,000 each. Illiteracy is prevalent. There are upwards of 350 elementary schools and a few institutions for secondary instruction.

Production and Commerce. The instability of political conditions in Nicaragua discourages foreign investments there, and little progress can be expected of the natives. Three crops are of some commercial importance—coffee, bananas, and sugar. Sugar-cane is grown more or less throughout the country; coffee is produced in the western districts on plantations controlled largely by Americans and Germans; the banana lands are chiefly in the Bluefields region. Other crops are corn, beans, cacao, and tobacco. Grazing is of considerable importance. The forests contain mahogany and other valuable woods, of which there is some exploitation. Various metals occur in paying quantity, but mining is almost limited to gold. Manufactures are little developed.

Imports and exports in 1908 are reported at $2,958,878 and $3,647,984 respectively; in 1909, $2,583,257 and $3,989,428; in 1910, $2,856,305 and $4,545,076. The leading imports are cotton fabrics, flour, and provisions. The coffee export in 1909 is stated at about 93,640 metric quintals, valued at $1,546,919; gold, $1,037,892; woods, $415,575; rubber, $229,871. In 1910, the United States furnished imports $1,581,000 and received exports $1,553,000; Germany, $369,000 and $821,000; United Kingdom, $664,000 and $656; and France, $157,000 and $1,025,000.

Communications. There is a railway line, which, with short branches has a total length of 171 miles. It connects the Pacific port Corinto with Chinandega, León, Managua, Masaya, Diriamba, and Granada. Steamers ply between Granada, on Lake Nicaragua, and San Juan del Norte, on the Caribbean Sea. There are some 20 miles of private railway. Telegraph offices are reported to number 148 and post offices 151.

Finance. In 1912 a new monetery unit was introduced, the gold córdoba, equivalent to the American dollar. The paper peso is greatly depreciated; its value has been about 16 cents. Revenue and expenditure in 1909 were 12,994,275 and 18,639,308 pesos respectively; in 1910, 15,182,852 and 34,573,125 (of which 22,520,277 extraordinary on account of the 1909 revolution). Of the revenue in 1910, 9,793,717 pesos were derived from customs, 1,427,095 from liquor taxes, and 1,319,025 from tobacco taxes.

Government. The legislative power is vested in a single chamber of 36 members elected for six years. The president, according to the constitution, is elected by direct vote for four years. In 1913 the president was Adolfo Diaz, who as vice-president succeeded to the executive office May 11, 1911, upon the resignation of General Juan J. Estrada. On October 7 following, the Congress chose General Luis Mena president for four years from January 1, 1913. This election was declared illegal, and Mena headed a revolt, which was suppressed with the assistance of American marines, to whom Mena surrendered September 25, 1912. On November 2, Diaz, as the unopposed Conservative candidate, was elected president. He was inaugurated January 1, 1913.

History. The Congress met on August 20, to discuss the economic situation and revise the budget. Sr. Maximo H. Zepeda was elected speaker, and Sr. Salvador Chamorro first designate to the presidency (vice-president). There was considerable discussion of a proposed treaty which would have given the United States a quasi-protectorate over Nicaragua. (See United States, *Foreign Affairs*). The essential condition which would incline Nicaragua to such an arrangement, namely, the need of financial backing, was somewhat relieved by a transaction with New York bankers who invested heavily in the capital stock of the National Bank of Nicaragua.

Many political arrests were made as the result of a happily frustrated plot to assassinate the president and legislators. Salvador Mendieta, the leader of the Liberal party, and Adan Espinoza were arrested, together with many of their followers, and two newspapers, *La Informacion* and *El Noticero*, were suppressed.

In November the government of Nicaragua issued a requisition for the arrest of ex-President José Santos Zelaya in the United States on the charge of murdering two of his countrymen in 1909. Gen. Zelaya was detained eight days in the Tombs prison of New York City on the warrant of the United State District attorney of New York, but was released on December 3. It was understood that Gen. Zelaya had no intention to reënter Central American politics, and that he would henceforth reside in Spain.

NICHOLAS II. LAND. See Polar Exploration, *Arctic*.

NIGER, Military Territory of. See Military Territory of the Niger.

NIGERIA. An order in council of November 22, 1913, provided that on January 1, 1914, the British protectorates of Northern Nigeria and Southern Nigeria (q.v.) should be amalgamated to form a single protectorate with Sir Frederick Lugard as governor-general. To assist Sir Frederick a Nigerian council was to be constituted, in which there should be six native representatives; four European members nominated by the crown to represent commerce, shipping, mining, and banking; a member of the Lagos Chamber of Commerce, one of the Calabar Chamber of Commerce, and one of the projected Chamber of Mines; and, as *ex officio* members, the governor-general with his executive council and other officials. Railway construction in Nigeria was proceeding actively during the year with the object of opening up the country and the Bauchi branch line was in active progress as far as Bukeroo. It was proposed to build a new railway line from a recently discovered harbor named Port Harcourt 140 miles to the Udi Coal fields, and thence northward to the Benue River and the Bauchi Plateau connecting with the Nigeria Railway system at Kadina.

See also Northern Nigeria and Southern Nigeria.

NILES, Kossuth. A rear-admiral (retired) of the United States navy, died December 6, 1913. He was born in 1849 at Belleville, Ill. During the Civil War he served as a private in the 142d Illinois Volunteers, and at the end of the war he entered the United States Naval Academy, from which he graduated in 1869. After serving in various stations, he was appointed lighthouse inspector for the eighth district in 1901, serving until 1903. From 1905-08 he was general inspector of ordnance at the New York navy yard. He commanded the battleship *Louisiana* on the cruise around the world in 1908-09, and in 1909-11 was a member of the lighthouse board. In 1910-11 he was a member and president of the national examining and retiring boards. In the latter year he was retired on account of old age.

NITROGEN. See CHEMISTRY; CHEMISTRY, INDUSTRIAL; and FERTILIZERS.

NOBEL PEACE PRIZE. See ARBITRATION, INTERNATIONAL; and NOBEL PRIZES.

NOBEL PRIZES. These prizes are awarded annually from an income of $8,400,000 by the will of Dr. Alfred Bernhard Nobel. The interest from this fund is to be distributed annually to those persons that shall have contributed most materially to benefit mankind during the year immediately preceding. The value of each prize is approximately $40,000, and is given for work in chemistry, physics, medicine, literature, and for the advancement of peace. The prizes awarded from the foundation of the fund, including those of 1913, are given in the table below:

Physics

Name	Year	Nationality
Wilhelm Konrad Röntgen	1901	German
H. A. Lorentz	1902	Dutch
Pieter Zeeman	1902	Dutch
Henri Becquerel	1903	French
Pierre Curie	1903	French
Marie Sklodowska Curie	1903	Polish
Lord Rayleigh	1904	English
Philipp Lenard	1905	German
Joseph J. Thomson	1906	English
Albert A. Michelson	1907	American
Gabriel Lippmann	1908	French
William Marconi	1909	Italian
Ferdinand K. Braun	1909	German
Johannes D. van der Waals	1910	Dutch
Wilhelm Wien	1911	German
Gustav Dalen	1912	Swiss
H. Kamerlingh Onnes	1913	Dutch

Chemistry

Name	Year	Nationality
Jacobus H. van't Hoff	1901	Dutch
Emil Fischer	1902	German
Svante Arrhenius	1903	Swedish
Sir William Ramsay	1904	English
Adolph von Baeyer	1905	German
Henri Moissan	1906	French
Eduard Buchner	1907	German
Ernest Rutherford	1908	English
Wilhelm Ostwald	1909	German
Otto Wallach	1910	German
Marie S. Curie	1911	Polish
Paul Sabatier	1912	French
V. Grignard	1912	French
Alfred Werner	1913	Swiss

Medicine

Name	Year	Nationality
Emil von Behring	1901	German
Ronald Ross	1902	English
Niels R. Finsen	1903	Danish
Ivan Petrovich Pavlov	1904	Russian
Robert Koc	1905	German
Camillo Golgi	1906	Italian
Santiago Ramón y Cajal	1906	Spanish
Charles Alphonse Laveran	1907	French
Paul Ehrlich	1908	German
Elie Metchnikoff	1908	Russian
Theodor Kocher	1909	Swiss
Albrecht Kossel	1910	German
Allvar Gullstrand	1911	Swedish
Alexis Carrel	1912	French
Charles Richet	1913	French

Literature

Name	Year	Nationality
Armand Sully-Prudhomme	1901	French
Theodor Mommsen	1902	German
Björnstjerne Björnson	1903	Norwegian
Frédéric Mistral	1904	French
José Echegaray	1904	Spanish
Henryk Sienkiewicz	1905	Polish
Giosuè Carducci	1906	Italian
Rudyard Kipling	1907	English
Rudolf Eucken	1908	German
Selma Lagerlöf	1909	Swedish
Paul J. L. Heyse	1910	German
Maurice Maeterlinck	1911	Belgian
Gerhart Hauptmann	1912	German
Rabindra Nath Tagore	1913	Bengalese

Peace

Name	Year	Nationality
Henri Dunant	1901	Swiss
Frédéric Passy	1901	French
Elie Ducommun	1902	Swiss
Albert Gobat	1902	Swiss
William R. Cremer	1903	English
Institute of International Law	1904	Internat'n'l
Bertha von Suttner	1905	Austrian
Theodore Roosevelt	1906	American
Louis Renault	1907	French
Ernesto T. Moneta	1907	Italian
K. F. Arnoldson	1908	Swedish
M. F. Bajer	1908	Danish
d'Estournelles de Constant	1909	French
Auguste M. Beernaert	1909	Belgian
International Permanent Peace Bureau	1910	Internat'n'l
T. M. C. Asser	1911	Dutch
Alfred Fried	1911	Austrian
Elihu Root (awarded 1913)	1912	American
Henri La Fontaine	1913	Belgian

Short biographies of the Nobel Prize winners of 1913 are given in the alphabetical order of their names. For the first time since the establishment of the prize, an award was made to a native of Asia: the prize for the greatest work in idealist literature was given to a Hindu. The prize in physics went for the fourth time to a Dutchman, thus bringing Netherlands on a par with Germany at the head of the list in this field. In 1912 no award was made of the Peace Prize, but in 1913 the prize for the former year was given to Senator Elihu Root in recognition of his efforts in behalf of international peace and arbitration.

NORTH CAROLINA. POPULATION. The population of the State in 1910 was 2,206,287. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 2,307,809.

AGRICULTURE. The area, production, and value of the principal crops in 1912-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	2,835,000	55,282,000	$48,648,000
	1912	2,808,000	51,106,000	42,418,000
Wheat	1913	605,000	7,078,000	7,503,000
	1912	598,000	5,322,000	5,907,000
Oats	1913	230,000	4,485,000	2,736,000
	1912	204,000	3,794,000	2,352,000
Rye	1913	46,000	474,000	465,000
	1912	44,000	409,000	429,000
Potatoes	1913	30,000	2,400,000	1,968,000
	1912	30,000	2,550,000	1,938,000
Hay	1913	320,000	*a* 419,000	6,914,000
	1912	293,000	381,000	6,363,000
Tobacco	1913	250,000	*b* 167,500,000	30,988,000
	1912	179,000	110,980,000	17,757,000
Cotton	1913	1,526,000	*c* 765,000	45,959,000
	1912	1,545,000	865,000	50,373,000
Rice	1913	300,000	7,000	6,000
	1912	400,000	10,000	9,000

a Tons. *b* Pounds. *c* Bales.

MINERAL PRODUCTION. The total value of the mineral production of the State in 1912 was $3,368,923, compared with $2,793,825 in 1911. The State produces a small amount of copper. In 1912 this amounted to 63,776 pounds, as compared with 13,699 pounds in 1911. The output is entirely from Cullowhee district, Jackson County. The value of the clay products of the State in 1912 was $1,465,653, an increase of $185,527 over 1911. The chief product was common brick.

TRANSPORTATION. The railway mileage in the State on January 1, 1913 was 4799. During 1913 there were constructed 52 miles by the

Raleigh, Charlotte, and Southern Railway, and 21 miles by the Watauga and Yadkin River.

Education. The report of the superintendent of education is for the biennial period 1911-12. The total school population in 1911-12 was 762,607, of whom 515,289 were white, and 247,318 were colored. The enrollment in the schools for white children was 525,507, and in the schools for colored children 152,273. The average daily attendance of white children was 242,798, and of colored children 89,748. The total number of teachers was 11,915. Of these 9017 were in the schools for white children, and 2898 in the schools for colored children. The average annual amount paid to each white teacher was $219.45, and to each colored teacher $119.60. The total expenditures for schools in 1911-12 were $4,078,-120.

Charities and Corrections. The charitable and correctional institutions under the control of the State, with their populations in 1913 are as follows: Hospital at Morganton, 1365; Hospital at Raleigh, 1866; Hospital at Goldsboro, 813; Epileptic Colony at Raleigh, 191; School for the Blind, Raleigh, 176; School for the Colored Blind and Deaf, Raleigh, 176; School for the White Deaf, Morganton, 260; Soldiers' Home, Raleigh, 130; Jackson Manual Training and Industrial School at Concord, 60; Orphanage for White Children at Oxford, 332; Orphanage for Colored Children, Oxford, 218; State's prison, Raleigh, 855. The total number of inmates in these institutions was 5511 on November 30, 1913. The second annual Social Service Conference was held in the State in 1913. The State Mental Hygiene Society was finally organized during the conference, and a State society under the National Congress of Mothers was successfully started. The legislature of 1913 placed the tuberculosis sanitorium under the State board of health, and this institution is to be used as a school for victims of this disease. A broad tuberculosis campaign will be carried on by the board of health during 1914.

Politics and Government. There was no election for State officers during the year, as the term of Governor Craig does not expire until January 1, 1917. The next State election will be held on November 3, 1914. The legislature passed the Seventeenth Amendment providing for the direct election of senators. The extra session of the legislature was held in 1913. Measures passed were almost entirely of local importance. A constitutional commission submitted to the extra session amendments providing for the initiative and referendum. The General Assembly, however, failed to include that recommendation among amendments to be submitted to the people in the autumn of 1914. On October 20 Governor Craig named "good roads days," in which work was to be done by volunteers on the State roads.

Legislation. The legislature met in 1913 and passed only one measure of general importance. This was a measure reducing the peremptory challenges permitted a defendant charged with capital felony from 23 to 12, and making it possible for courts to draw a jury from another county instead of making the change of venue. See also Liquor Regulation.

State Government. Governor, Locke Craig; Lieutenant-Governor, E. L. Daughtridge; Secretary of State, J. B. Grimes; Treasurer, B. R. Lacy; Auditor, W. P. Wood; Attorney-General, T. W. Bickett; Superintendent of Education, J. Y. Joyner; Commissioner of Agriculture, W. A. Graham; Commissioner of Insurance, J. R. Young—all Democrats.

Judiciary. Supreme Court: Chief Justice, Walter Clark, Dem.; Justices, Geo. H. Brown, Dem.; Wm. A. Hoke, Dem.; Wm. R. Allen, Dem.; P. D. Walker, Dem.; Clerk, L. Seawell, Dem.

State Legislature, 1913. Democrats: Senate, 47; House, 104; joint ballot, 151. Republicans: Senate, 1; House, 6; joint ballot, 7. Progressives: Senate, 2; House, 10; joint ballot, 12. Demorcatic majority: Senate, 44; House, 98; joint ballot, 132.

The names of senators and representatives to Congress will be found in the article United States, section *Congress.*

NORTH CAROLINA, University of. A State university for higher education, founded at Chapel Hill, N. C. in 1793. The total enrollment in all departments of the university in 1913 was 870. The faculty numbered 59. There were no noteworthy changes in the faculty during the year and no important benefactions were received. The productive funds of the university amount to $215,446. The library contains 69,750 volumes. The president is Francis P. Venable, Ph.D.

NORTH DAKOTA. Population. The population of the State in 1910 was 577,056. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 660,849.

Agriculture. The area, production, and value of the principal crops in 1912-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	375,000	10,800,000	$ 5,616,000
	1912	328,000	8,758,000	3,766,000
Wheat	1913	7,510,000	78,855,000	57,564,000
	1912	7,990,000	143,820,000	99,236,000
Oats	1913	2,250,000	57,825,000	17,348,000
	1912	2,300,000	95,220,000	20,948,000
Rye	1913	125,000	1,800,000	810,000
	1912	48,000	864,000	406,000
Potatoes	1913	60,000	5,100,000	2,856,000
	1912	52,000	6,656,000	1,864,000
Haye	1913	340,000	[a] 388,000	2,250,000
	1912	364,000	510,000	2,805,000

[a] Tons.

Mineral Production. The total value of the mineral production of the State in 1912 was $1,021,741, compared with $957,425 in 1911. The State is not important as a producer of coal. In 1912 the production was 499,480 short tons, valued at $765,105. All the coal mined in the State is lignite. The production of 1911 was 502,628 short tons. The number of men employed in the coal mines in 1912 was 622, compared with 640 in 1911. There were no fatal accidents in 1912.

Transportation. The railway mileage of the State on January 1, 1912, was 4703. During 1913, the following mileage was constructed: The Fairmont and Veblen, a line running from Fairmont, North Dakota, to Veblen, South Dakota, about 12 miles in North Dakota; Minneapolis, St. Paul, and Sault Ste. Marie, from Ambrose, west to Montana State line, about 28 miles; Great Northern, from the Montana line to Mohauk, N. D., about 50 miles; extension of the Northern Pacific, Stanton line, about 25 miles. When these lines are completed, about 500 miles will have been added to the railroad lines in the State.

CHARITIES AND CORRECTIONS. The institutions under the control of the State include the State Penitentiary, State Hospital for the Insane, State Industrial School, State Institutions for Feeble-minded, School for the Deaf, State Reform School, and the State School for the Blind.

EDUCATION. The total school population of the State in the school year 1912 and 1913 was 167,326. The total enrollment in public schools was 139,361, and the average daily attendance 99,686. The teachers, both male and female numbered 7569, and the average monthly salary of the teachers was $55.03. Among the important measures enacted by the legislature of 1913 were those providing for a teachers' insurance and retirement fund and a State Board of Education. The new high school laws and laws providing for aid to rural, graded, and consolidated schools, were also passed.

FINANCE. There was a balance in the treasury on November 1, 1912, of $840,663. The total receipts for the fiscal year ending October 30, 1913, was $4,258,526. The expenditures were $3,115,514, leaving a balance on hand on June 30, 1913, of $1,983,675. The chief receipts are from taxation, and the chief expenditures are for education, State institutions, and State officers.

POLITICS AND GOVERNMENT. There was no election for State officers during the year, as the term of Governor Hanna does not expire until January 1, 1915. The next State election will be held November 3, 1914. The legislature passed a number of measures affecting elections in the State. These related to a presidential primary, non-partisan judiciary elections, and nominations, non-partisan school elections and primaries, and corrupt practices acts, and also a somewhat novel measure for the benefit of those absent from the State, particularly commercial travelers, allowing them to vote by affidavit wherever they may be at the time. Resolutions providing for the initiative, referendum, and recall having passed the legislature in 1912 and 1913, will be submitted to the people in the general election held in November, 1914. Wonderful progress was made during the year in the way of better farming, and greater prosperity has resulted. Railway development during 1913 was far in excess of that of the country at large. The year 1914 will be the twenty-fifth anniversary of statehood, which will be appropriately celebrated, exhibiting the wonderful progress made along all lines in the past quarter of a century.

LEGISLATION. The legislature met in 1913 and passed several important measures. A measure was passed to prevent procreation by confirmed criminals, insane, idiots, and defectives; another to regulate the practice in District and Supreme Courts. By this latter enactment all exceptions on trial are made unnecessary, exceptions being required only in charge to the jury. Typewritten transcripts may be used on appeal instead of printed abstracts. Provision was made for the submission to the people of a constitutional amendment providing for woman suffrage. An inheritance tax law was passed. Teachers' insurance and retirement funds were established. Provision was made for providing for a submission to the people of a constitutional amendment, providing for the initiative and referendum, and also for a proposal to amend the constitution by initiative petition.

STATE GOVERNMENT. Governor, L. B. Hanna; Lieutenant-Governor, A. T. Kraabel; Secretary of State, Thomas Hall; Treasurer, Gunder Olson; Auditor, C. O. Jorgenson; Attorney-General, Andrew Miller; Superintendent of Education, E. J. Taylor; Commissioner of Agriculture, W. C. Gilbraith; Commissioner of Insurance, W. C. Taylor—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, B. F. Spalding, Justices, Chas. J. Fisk, E. T. Burke, E. B. Goss, A. A. Bruce; Clerk, R. D. Hoskins—all Republicans, except Fisk.

STATE LEGISLATURE, 1913. Republicans: Senate, 44, House, 103; joint ballot, 147. Democrats: Senate, 6; House, 8; joint ballot, 14. Republican majority: Senate, 38; House, 95; joint ballot, 133.

The names of the senators and representatives to Congress will be found in the article UNITED STATES, section *Congress*.

NORTH DAKOTA, UNIVERSITY OF. A State institution for higher learning, founded at Grand Forks, in 1883. The total number of students enrolled in the several departments of the university in the autumn of 1913 was 671. The faculty numbered 94. Dr. Henry Brush was appointed to succeed Professor Henry L. Daum, deceased, as professor of romance languages. There were no noteworthy benefactions during the year. The productive funds of the university amount to about $1,700,000, and the income which is derived chiefly from the State legislature, $227,000. The library contains about 52,000 volumes. The president is Frank L. McVey, Ph.D., LL.D.

NORTHEN, WILLIAM JONATHAN. A former governor of Georgia, died March 25, 1913. He was born in Jones County, Ga., in 1835; graduated from Mercer University in 1853; and for several years he taught school. He engaged in farming in 1874; was president of the State Agricultural Society from 1886-88; in 1877-78 a member of the State House of Representatives; and in 1884-85 a member of the State Senate. He was elected governor in 1890, serving until 1894. On his retirement from the governorship he became manager of the Georgia immigration and investment bureau, which position he continued to hold until the time of his death. He was the vice-president of the American Tract Society and of the American Bible Society.

NORTHERN NIGERIA. A British west African protectorate, covering an area of 255,700 sq. miles and including the empire of the Fulani, whose head is the sultan of Sokoto, with its dependencies; together with Idah, and the pagan countries of Borgu and Bornu. Pagan tribes inhabit the southern part of the protectorate, the Kabba country, and the north and east bank of the Niger. The Hausa states of the Fulani empire contain, roughly, about eight million highly civilized Mohammedan inhabitants. The chief station and garrison is Lokoja, at the junction of the Niger and the Benue. At Jebba (the capital till 1902) the limit of navigation is reached and the railway bridge crosses the Niger. Zungeru, near the Kaduna River, is the capital. The protectorate maintains a commercial station at Burutu (Forcados River mouth in Southern Nigeria) for the transhipment of goods and travelers. Palm oil and palm kernels are the chief exports of the lower

Niger valley; other products are rubber, hides, ground nuts, shea butter, ivory, chillies, and medicinal plants. Cassiterite is mined—1470 tons exported in 1911. Duties are levied only on imports and are collected by Southern Nigeria, which compensates by contributing to the Northern Nigeria revenue. Imports *via* Idah, the inland frontier station, are given from the reports of commercial firms in 1911 at £360,364 and £391,777. The Baro-Kano Railway traveres 356 miles, and has a branch to Zungeru, where it connects with the Lagos line. In 1911 a light railway from Zaria was begun, to end at Naraguta (Bauchi district) and was completed, March, 1912, as far as Rahama (88¼ miles). (See also SOUTHERN NIGERIA.) Local revenue (1911-12), £545,291; grant-in-aid, £347,000; Southern Nigeria contribution, £70,000—total, £962,291. Expenditure, £827,939. Governor (1913), Sir F. J. D. Lugard.

See also NIGERIA.

NORTHWESTERN UNIVERSITY. An institution for higher education founded at Evanston, Ill., in 1851. The total enrollment in November, 1913, was 4490. The faculty numbered 378. Among the new appointments to the faculty were those of Harland Updegraff, Ph.D., professor of education; Edward Leroy Schaub, Ph.D., professor of philosophy; Walter Edward Lagerquist, Ph.D., assistant professor of economics; Horace Secrist, Ph.D., assistant professor of economics; Lewis Omer, director of physical training. These were all in the college of liberal arts. There were also new appointments in the medical school, the school of pharmacy, school of music, and the school of commerce. The important benefactions received during the year included $250,000 from Mr. Norman W. Harris, and $450,000 from two other sources. The productive funds of the university amount to about $4,600,000. The library contains about 184,000 volumes. The president is Abram W. Harris, LL.D.

NORWAY. A constitutional European monarchy, situated in the western portion of the Scandinavian Peninsula. Capital, Christiania.

AREA AND POPULATION. The total land area is 119,549 sq. miles; the total area including fresh waters, 124,675. The total *de facto* population, December 31, 1910, was 2,357,790; *de jure* population, 2,391,782 (estimated December 31, 1911, 2,411,948). Of the total *de facto* population, 1,662,513 resided in the rural communes, and 695,277 in towns. Males numbered 1,123,160, females 1,234,630. Agriculture and allied industries supported 898,259; fisheries, 134,685; mines, furnances, etc., 247,077; manufactures, etc., 238,722; small enterprises, and public utilities construction, 111,832; commerce, banks, and internal transportation, 279,866; navigation, 77,636; public administration and the liberal professions, 109,492; domestic labor, 101,865; without occupation, 45,701. Total population over fifteen years of age, 1,525,564. In 1911 the marriages numbered 14,800, births 61,000 (4080 illegitimate), deaths 31,300, emigrants, 12,477. Christiania had (1910) 241,834 inhabitants (*de jure*); Bergen, 76,867; Trondhjem, 45,335; Stavanger, 37,261. Lutherans are in the majority. All creeds except Jesuitism are tolerated.

PRODUCTION. The agricultural census of 1907 returned 1,111,949 acres under cultivation, 854,701 under sown and natural grasses and 69,114 under forest. The total value of sown crops in 1911 was reckoned at 184,907,600 kronen (cereals 36,497,200, potatoes 35,604,400, hay 112,806,000); in 1910, at 200,712,400; in 1908, at 270,872,500; in 1905, at 220,836,100; in 1903, at 211,927,000. The cereal production by no means keeps up with the consumption; in 1910 the total cereal production (including dried legumes) was 292,691,000 kilos; the total cereal import, 598,355,000 kilos. Potato yield in 1910, 568,289,000 kilos; import, 13,122,000 kilos. The following table shows the area in hectares and the production (final returns) in quintals of main cereal crops in 1911 and 1912, with quintals per hectare in 1912:

	Hectares		Quintals		Qs.
	1911	1912	1911	1912	ha.
Wheat	5,021	5,021	73,513	90,038	17.9
Rye	15,056	15,056	240,615	264,401	17.6
Barley	35,917	35,917	584,024	706,917	19.7
Oats	106,279	106,279	1,479,373	1,963,373	18.5

The 1907 livestock returns were as follows: 172,468 horses, 1,094,101 cattle, 1,393,488 sheep, 296,442 goats, 318,556 swine, 142,623 reindeer. Poultry is raised in considerable numbers. Persons employed in the 670 creameries, 68 cheese, and 4 condensed-milk factories, etc., in 1910, 1021 men and 1710 women; these establishments received during the year 277,761,763 kilograms of milk and turned out 3,707,231 kilos of butter and 7,796,739 kilos of cheese.

The cod fisheries employed, in 1911, 86,301 fishermen and 19,407 boats (93,608 and 20,055 in 1909; 75,999 and 19,878 in 1902). Output: 65,051 cod, 127,874 hectoliters of livers, 40,461 hectoliters of roes (56,208, 138,985, and 46,321 in 1909; 45,217, 73,755, and 32,881 in 1902); valued at 25,891,000 kronen (18,146,000 in 1909; 12,895,000 in 1902). Output of herring fisheries: 2,989,000 hectoliters valued at 12,902,000 kr. (9,903,000 in 1909; 7,923,000 in 1902). The salmon and salmon trout fisheries brought in 952,255 kilos in 1908, valued at 1,324,844 kr.

The mines in 1910 employed 6246 persons and produced 543,709,000 kilograms valued at 11,220,000 kr. Industrial establishments at end of 1911 numbered 5788, employing 129,238 persons and 612,701 horse power.

COMMERCE. Below is shown the trade for comparative years in kroner:

	1909	1910	1911
Imports........	386,616,600	429,228,800	495,749,100
Exports........	264,326,000	309,730,400	325,406,900

Some of the principal imports are cereals (66,649,400 kr. in 1911), colonial products (40,590,400), boats, vehicles, machinery etc., (68,178,700), minerals (41,085,100), textiles (37,437,400), textile material (13,664,600), metals (27,200,600), metal manufactures (29,726,600), alimentary animal products (13,141,000), other animal products (19,339,500). Among the exports are alimentary animal products (103,978,800 domestic and 3,198,000 reëxport), wood, raw and partly worked (34,188,200 and 14,900), wooden wares (43,870,400 and 5400), animal products other than alimentary (19,203,000 and 459,000), oils, resins, etc. (12,773,500 and 418,700), paper and paper goods (21,042,600 and 10,300), minerals (12,775,300 and 1,109,600), mineral manufactures (13,274,000 and 649,500), metals, raw and partly raw (10,657,500 and 96,700), metal manufactures (2,226,500 and 606,000). Germany contributed imports valued at 147,988,000 kr. and received exports valued at 67,173,000 kr; United Kingdom, 127,400,000 and 87,173,000; Sweden, 57,797,000 and 20,003,000; Russia and Finland, 35,357,000 and 11,744,000; United States, 30,987,000 and 28,497,000; Denmark, 21,950,000 and 7,579,000; France, 11,898,000 and 11,613,000.

Vessels entered during 1911 numbered 11,294, of 5,128,068 tons; cleared, 11,622, of 5,117,415 tons. There were, January 1, 1911, in the merchant marine, 1842 steamers, of 895,869 tons, and 1205 sailing, of 630,287.

Communication. In 1910-11 there were 3085 kilometers of railway in operation (2057 in 1900; 1562 in 1890; 887 in 1878; 68 in 1860). Receipts for the year, 25,659,471 kr.; expenditure, 19,068,447. Length of highways and local roads (1910), 31,876 kilometers (16,091 in 1850). Post offices, 3496; receipts (year 1911), 8,963,223; expenditures, 8,235,475. State telegraph and telephone lines (June 30, 1912), 21,683 kilometers; wires, 168,963; offices, 1305; receipts for the year, 6,615,808.78 kr.; expenditure, 4,702,049.05.

Finance. The krone (worth $.268) is the monetary unit. In the following table are shown revenue and expenditure for comparative years (budget):

	1909-10	1910-11	1911-12
Revenue........	122,243,829	128,279,596	140,730,210
Expenditure....	116,751,005	120,905,430	132,932,368

The principal sources of revenue were estimated in 1911-12 as follows: Finance and customs, 82,801,792 kr.; public utilities, 40,178,526; instruction, 3,755,626; justice, 2,101,258; from loans, 5,817,333; agriculture (including state forests), 1,404,032; with divers other receipts the total revenue was estimated at 140,730,210 kroner. The principal revenues of expenditure were public utilities, 50,301,105 kroner; defense, 23,181,460; finance, 23,214,120; instruction, 14,999,668; justice, 9,250,689; commerce and industry, 3,055,860; council of state, 1,940,572; foreign affairs, 1,019,810; civil list, 747,833; Storthing, 680,017; these estimates with miscellaneous additions make up a total of 132,932,368 kroner. The total public debt stood, June 30, 1912, at 362,805,563 kroner—149.86 kr. per capita, as calculated upon the *de jure* population (estimate) of June 30, 1912. Of the total, 17,839,195 kr. represent the internal and 344,966,368 the external debt.

Army. The Norwegian army is based on universal and compulsory service with few exceptions, but the annual contingent required is not sufficiently large to make the service very onerous. There are three lines, the active army, or Ligne, in which there is a period of service of 12 years, the Landvaern, with eight years' service, and the Landsturm, in which citizens are enrolled until the age of 50. The duration of service is twelve years in the line and eight in the Landvaern, while a Landsturm to take in young men from 18 to 22 years of age and those from 43 to 55, who had passed the period for required service in the first and second lines, was projected, but had not been put into execution. The recruits are in active service for a number of days of various years of their period amounting from 144 days, in the case of the infantry, to 198 days in the case of the cavalry, and various other periods for other branches of the service. The kingdom is divided into ten divisions for recruitment, at the head of which are retired officers and there are sub-divisions each furnishing from three to six battalions, making a total of 47 battalions in all. The annual contingent of men for the infantry is from 9000 to 10,000, while the contingent for the other arms of the service is 425 men for the cavalry, 546 for the field artillery, 120 for the heavy artillery, 120 for the fortress artillery, and 416 for the engineers. The Norwegian forces are divided into six brigades with headquarters at Fredrikshald, Kristiania, Kristiansand, Bergen, Trondjem, and Harstad. The active army is maintained on a skeleton, or cadre, basis, the organization being filled out in the training season by men called to the colors for various periods of service from 72 days per annum in the case of the infantry to 126 days per annum for the artillery. In 1912, 8000 men formed the infantry contingent. As a result of this organization the military force available for service beyond the frontier would number about 30,000, while a total armed strength of 70,000 could be mobilized. The regiment is the unit under the scheme of the organization adopted in 1909, but there is also a brigade formation for all arms and full arrangements for the mobilization of troops.

Navy. Included in the active fleet are 4 coast-defense vessels, of 16,300 aggregate tons; 2 monitors, of 3500; 3 first-class gunboats, of 3250; 8 second-class gunboats, of 2270; 2 torpedo-boat destroyers, of 1100; torpedo dispatch boat, of 410; 10 first-class torpedo boats, of 1020; 27 second-class torpedo boats, of 1840; and 1 third-class, of 30; 1 submarine, of 200. Building are one torpedo-boat destroyer, a torpedo boat, and four submarines.

Government. The executive power is vested in a king (1913, Haakon VII., elected November 18, 1905), aided by a council of state composed of responsible heads of departments. The Storthing (representative), made up of the Lagthing and the Odelsthing, is the legislative body.

Heir-apparent, Prince Alexander, born July 2, 1903; renamed Olaf upon his father's accession to the throne.

The council as constituted January 31, 1913, was as follows: G. Knudsen, premier and minister of state and agriculture; N. Ihlen, foreign affairs; A. O. Bryggesaa, worship and instruction; L. Abrahamsen, justice and police; J. Castberg, commerce, etc.; A. T. Urbye, public works; A. T. Omholt, finance, etc.; H. V. D. Keilhau, defense.

History. The elections of November, 1912, as noted in the 1912 Year Book, greatly strengthened the Left (Radicals and Democrats) at the expense of the government *bloc* of the Right and the Liberals. The *bloc* now had only 41 instead of 54 seats, while the Left had increased its representation from 44 to 49, and the Socialists from 25 to 33. The new Storthing assembled on January 23 to hear the speech from the throne, which foreshadowed (1) the reorganization of the civil procedure, (2) the regulation of industrial disputes, (3) modification in the bastardy law. On the following day the Bratlie ministry resigned in acknowledgment of the fact that it no longer controlled a majority in the Storthing. Gunnar Knudsen, who had been premier until defeated in the elections of 1909, was returned to power, with the cabinet given above. The duties of the minister of commerce and labor were enlarged, it should be noted, to include the preparation and application of pension laws, obligatory insurance, inspection of labor conditions, and public hygiene. The programme which the ministry hoped to enact with the support of the Radicals, Democrats, and possibly the Socialists, included measures for (1) the protection of national economic independence against the inroads of foreign financiers, (2) ecclesiastical reforms to be carried out in a "liberal and democratic" spirit, (3) old-age pensions, (4) the inspection of labor conditions, (5) democratic reforms in the army which would make it possible for able men to rise from the ranks. On June 11 the Storthing unanimously passed a bill removing the restriction on female suffrage in parliamentary elections; henceforth all women over 25 years of age are entitled to vote regardless of the amount of their income tax. On June 26 a bill was passed by 92 to 23 votes abolishing the royal veto. A bill to abolish the badges of orders received 75 affirmative and 47 negative votes, thus failing to secure the necessary two-thirds majority. On July 31 the Frithjofstatue presented to Norway, by Emperor William II., was unveiled; the occasion gave opportunity for a cordial interchange of compliments by the monarchs of Norway and Germany.

NORWOOD, Thomas Manson. An American jurist and former United States senator from Georgia, died June 21, 1913. He was born in Talbot County, Ga., in 1830, and graduated from Emery College in 1850. Two years later he was admitted to the bar and began practice in Savannah. At the outbreak of the Civil War he enlisted in the Confederate army and served throughout the war. At the close of it, he engaged again in the practice of law and also took a prominent part in State politics. In 1871 he was elected United States senator from Georgia, serving until 1877; in 1880 he was candidate of one of the two factions of the Democratic party for governor of the State. He was a member of the State House of Representatives from 1885-89, and from 1896-1908 he was judge of the City Court of Savannah. In this office he came into contact with thousands of negroes, and he had strong opinions on the education of negroes, which he insisted was a mistake, holding the negro incapable of intellectual development. He wrote *Plutocracy, or American White Slavery* (a novel, 1888); *Patriotism, Democracy or Empire—a Satire* (1900).

NOVA SCOTIA. A province of the Dominion of Canada. Area, 21,428 square miles; population (census of June 1, 1911), 492,338 (459,574 in 1901). Halifax is the provincial capital, with 46,619 inhabitants in 1911. A lieutenant-governor administers the province—James Drummond McGregor in 1913 (appointed October 18, 1910). Premier in 1913, George H. Murray. See section so entitled under Canada, Dominion of.

NURSES, School. See Education in the United States, *School Hygiene*.

NUTRITION. See Alcohol, and Food and Nutrition.

NYASSALAND PROTECTORATE. A British central African possession lying between German and Portuguese East Africa and Northeastern Rhodesia and Lake Nyassa. Area, 39,801 square miles; population (March 31, 1910), 773 Europeans, 463 Asiatics (exclusive of Sikh troops), and 999,423 natives. Chief town, Blantyre; administrative headquarters, Zomba. The principal products and exports are cotton (3392 bales of 400 pounds in 1911-12), maize, wheat, tobacco, rice, rubber, and coffee. Imports and exports in 1911-12 (exclusive of goods in transit), £247,548 and £198,577 (£199,710) and £168,911 in 1910-11). Revenue (1911-12), £128,856 (£97,356 local, £31,500 grant-in-aid); expenditure, £118,070. The protectorate is traversed (808 miles) by the African Trans-continental Telegraph Company's line. One hundred and thirteen miles of railway are in operation. The extension of the Blantyre-Port Herald line to Kaia on the Zambese, was contracted for. In addition to this extension of the original line, 113 miles in length, there was to be an ultimate extension to Beirax. Governor in 1913, Sir W. H. Manning (February, 1911).

OATS. The world's production of oats in 1913 amounted to about 4,290,000,000 bushels as compared with 4,585,000,000 bushels in 1912. This reduction was the result mainly of smaller yields in Russia and the United States. The Russian yield was estimated at 1,025,000,000 bushels, or over 25,000,000 bushels less than the year before, while the crop in the United States was shorter by about 300,000,000 bushels. Germany produced 647,980,000 bushels, the largest crop for 10 years, and the average rate of yield was 56 bushels per acre. Other heavy-yielding countries were Canada with 395,000,000 bushels, France with 358,000,000, the United Kingdom with 193,000,000, Austria with 158,000,000, Hungary with 98,000,000, and Italy with 41,600,000 bushels. In all of these countries except Austria better crops were secured than in 1912. In Italy the production was more than 50 per cent. and in Hungary more than 25 per cent. greater than in the previous year. The highest average yields per acre were reported by the Netherlands and Belgium, being 69 and 63 bushels respectively, while the lowest, 7.2 bushels, was reported by Spain. The Russian acre yield was also low, being only 8.1 bushels. The world's acreage was slightly above that of last year. The supply of oats is sufficient to satisfy the demands of international markets.

The United States in 1913 produced the third largest crop of oats in its history on the largest acreage ever devoted to the cereal. The production amounted to 1,121,768,000 bushels on 38,399,000 acres, as compared with 1,418,337,000 bushels on 37,917,000 acres the year before. The average yield for the two years was 29.2 and 37.4 bushels per acre respectively. Based on the farm price of 39.2 cents per bushel on December 1, the valuation of the total crop reached $439,596,000, as against 31.9 cents per bushel and $452,469,000 for the crop of the previous year on the corresponding date. The crop in the different States ranged from 52,000 bushels in Rhode Island to 168,360,000 bushels in Iowa, and these two States also had the lowest and highest acreage respectively. Following Iowa, Minnesota produced 112,644,000, Illinois 104,125,000, Wisconsin 83,038,000, Nebraska 59,625,000, North Dakota, 57,825,000, and Ohio 54,360,000 bushels. All of these States except Nebraska reported smaller yields than a year ago. The lower yields in the principal oat-growing States were due to a severe drouth which injured all spring-sown grain crops. The average yield per acre in some of the drouth-stricken sections dropped to one-half of normal. In rate of yield as usual the extreme Northwest again led all sections. Washington reported an average yield of 48 bushels, Idaho and Utah of 46, and Montana of 44 bushels per acre. The New England States as in the previous year also ranked high in acreage yield, Maine leading with 40 bushels. The areas of winter oats in the Southern States were larger as a rule than in the previous year and in most States the average yield per acre was also better.

OBER, Frederick Albion. An American author and ornithologist, died June 1, 1913. He was born in Beverly, Mass., in 1849, and was educated in the public schools and by private study. In 1872-74 he hunted birds in Florida and explored the Lake Okeechobee region. In 1876-81 he made ornithological investigations in the Lesser Antilles, discovering twenty-two new species of birds and adding many types to the collection of the Smithsonian Institution. He traveled much in Mexico, Spain, North Africa, South America, and in the West Indies, of which islands he was a commissioner for the Chicago Exposition in 1891-92. In addition to his ornithological writings he was best known as a writer of boys' stories. He wrote also *Porto Rico and Its Resources* (1892); *A Brief History of Spain* (1897); *Storied West Indies* (1900); *Our West Indian Neighbors* (1904); *History of Mexico, Central America and Cuba* (1904); *A Guide to the West Indies* (1907); and *The Heroes of American History* (12 vols., 1907).

OBERLIN COLLEGE. An institution for higher education founded at Oberlin, Ohio, in 1833. The total enrollment in all departments in the autumn of 1913 was 1809. The faculty numbered 160. There were no notable changes in the faculty during the year, and no especially noteworthy benefactions were received. The productive funds of the college amount to about $3,750,000. The library contains 120,000 bound volumes and 125,000 pamphlets. The president is Henry C. King, D.D.

OCCUPATIONAL DISEASES. Brass founders' or zinc ague, a frequent but unrecognized illness occurring among brass workers, was carefully investigated by E. R. Hayhurst, of Chicago. Workmen exposed to the fumes of molten metals are likely to become poisoned. In the case of lead and mercury this had long been known, but the fumes of metal such as brass, bronze, German silver, also frequently poison, and the dust inhaled by those engaged in polishing or handling such metals has not infrequently the same effect. Brass founders' ague was believed to be due to zinc, brass being a compound of copper and zinc. The most important symptom is the chill, with some fever and sweating; besides this, the throat is dry, there is a dry cough, constriction of the chest, a metallic taste in the mouth, loss of appetite, headache and sometimes severe backache and pains in the legs. Nausea and vomiting may or may not occur. After the chill, which lasts from one to three hours, the patient feels weary, but otherwise well. The chills are more likely to occur in the latter part of the afternoon or in the cool of the evening. Hayhurst found that 70 to 80 per cent. of workmen in these trades are susceptible to poisoning, and that 75 per cent. of the remainder develop a certain degree of tolerance to the poison, while the other 25 per cent. suffer more or less regularly. Investigations also showed that men employed in this work were frequently addicted to alcohol, owing to the belief that whisky is an antidote. It was also shown that these men did not live as long as the average mechanic and the mortality from tuberculosis is very high among them.

The fourth National Conference on Occupational Diseases was held at Rome, in June, 1913. Italy had long had an institute at Milan devoted exclusively to research on industrial affections and their treatment, the first of the kind in the world. It published a semi-monthly journal *Il Lavoro,* now in its sixth volume, which discusses questions connected with the hygiene of wage-workers and prophylaxis of occupational injuries. It was edited by L. Devoto, incumbent of the chair of occupational affections in the University of Milan.

Leuenberger, after reviewing the death certificates of the city of Basel over the period 1901-10, found that tumors of the urinary tract were thirty-three times more numerous in anilin-dye workers than in workmen of other classes. Statistics of the Basel University clinic indicated that over one-half of all cases of tumors of the bladder in patients admitted to the hospital during the last fifty years have occurred in anilin-dye workers. Carcinomas have been most numerous. Leuenberger believed that chemical irritation of the mucous membranes was greater in the urinary tract, because the toxic substances occur there in greater concentrations than in any other part of the body. In 1895 Rahn described tumors of the urinary bladder in fuchsin workers and concluded that the liberation of such products as toluidin, nitrobenzene and anilin, when crude fuchsin is heated, was the cause of these tumors. The skin and respiratory tract are considered the most important avenues by which this poison enters the body. Daily baths are recommended and the wearing of impervious clothing and gloves, together with masks against dust and vapors, to be worn in the workrooms. (See also Labor Legislation, *Accidents and Diseases.*)

OCEANOGRAPHY. See Exploration, under section *Oceanography.*

OHIO. Population. The population of the State in 1910 was 4,767,121. According to the estimates of the Bureau of the Census, make in 1913, the population in that year was 4,965,169.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	3,900,000	146,250,000	$92,138,000
	1912	4,075,000	174,410,000	78,484,000
Wheat	1913	1,950,000	35,100,000	31,590,000
	1912	1,220,000	9,760,000	9,565,000
Oats	1913	1,800,000	54,360,000	21,744,000
	1912	2,120,000	93,280,000	30,782,000
Rye	1913	97,000	1,600,000	1,104,000
	1912	57,000	884,000	663,000
Potatoes	1913	160,000	10,240,000	8,704,000
	1912	186,000	20,832,000	11,041,000
Hay	1913	2,960,000	[a]3,848,000	49,254,000
	1912	2,960,000	4,026,000	52,338,000
Tobacco	1913	81,900	[b]61,425,000	7,002,000
	1912	86,200	79,300,000	7,217,000

[a] Tons. [b] Pounds.

Mineral Production. The total value of the mineral products of the State in 1912 was $111,229,656, compared with $97,090,284 in 1911. Ohio is one of the chief States in the production of coal. There were mined in 1912 34,528,727 short tons, valued at $37,083,363. This production was the highest in the whole mining history of the States, and represented an increase over the production of 1911 of 3,768,741 short tons or 12.25 per cent. The largest output previously reported was in 1910, when on account of the labor troubles in Illinois and Indiana, Ohio coal was in great demand, and the production was 34,209,668 tons. Following the suspension of mining on April 1, 1912, employes in the coal mines secured an advance of wages amounting to about five and a quarter to five and a half per cent. The chief factors in stimulating the production in 1912 were first, the large farm crop and the resultant prosperity in agricultural districts; second, a general increase in manufacturing, particularly in iron and steel; and third, the labor troubles in the Cabin Creek and Paint Creek districts in West Virginia, which reduced competition with, and stimulated the demand for Ohio coals in the lake trade. Fewer men were employed in the coal mines of Ohio in 1912 than in 1911, but there was a marked increase in the number of days work. In 1912 there were employed 45,527 men who worked an average of 201 days, against 46,035 for an average of 179 days in 1911. Ohio leads in the percentage of coal mined by the use of machines. In 1912 over 87 per cent. of the coal produced was mined by machinery. The fatalities in the coal mines in Ohio in 1912 numbered 133, of which 125 were underground, 4 in shafts, and 4 on the surface. Only 1 death was due to an explosion of gas.

According to the estimates of the United States Geological Survey, the production of coal in 1913 was slightly in excess of the output of 1912, and amounted to a little over 34,500,000 short tons. In the late spring, mining operations in the State were affected by the great floods, which tied up transportation and prevented operations for about one month.

Ohio ranked second in the production of pig iron. There were produced in 1912 6,802,493 long tons, compared with 5,110,506 in 1911. A small amount of iron ore was mined in the State.

The petroleum production in 1912 was 8,969,007 barrels, compared with 8,817,112 barrels in 1911. The chief production is in the Lima and southeastern districts, and in the latter there were produced 5,113,051 barrels, in the former 3,955,897 barrels in 1912. The latter figure includes the production of Michigan. The total number of completed wells in the State in 1912 was 1717.

Ohio was the leading State of the Union in the value of clay products. The value of these products in 1912 was $34,811,508, over 20 per cent. of the total for the country. This was an increase of $2,147,612 for 1911. The brick and tile production in 1912 was valued at $19,302,773, and the pottery production at $15,508,735. The principal clay product is white ware.

Transportation. The total mileage in the State on June 30, 1912, was 9,233.19. The total stock of the railroad line amounted to $987,206,947. The railroads having the longest mileage in the State are the Lake Shore and Michigan Southern, 390; Detroit, Toledo, and Irington, 330; Cleveland, Cincinnati, Chicago, and St. Louis, 336; Cleveland, Akron, and Cincinnati, 325; Toledo and Ohio, 394; Wheeling and Lake Erie, 474; Pittsburgh, Cincinnati, Chicago, and St. Louis, 335; and the Toledo, Columbus, and Ohio River, 337.

Education. The school population of the State on August 31, 1913, was 1,245,900. The total enrollment was 870,612, and the average daily attendance was 683,999. The teachers numbered 29,191, of whom 20,939 were women and 8252 were men. The average salary for men teachers was about $69 a month, and for women teachers $55. The total expenditures for educational purposes in 1913 were $32,455,752. The educational policy of the State is undergoing great changes. A survey of the schools was taken during 10 months of 1913, and as a result of this survey many important legislative measures will be introduced in the legislature of 1914.

Finance. The report of the State treasurer for the fiscal year ending November 15, 1913, showed a balance in the treasury at the beginning of the fiscal year of $4,781,327. The total receipts for the same period were $21,491.137. The disbursements for the same period amounted to $14,882,868, leaving a balance at the close of the fiscal year of $6,211,092. The chief sources of revenue are county tax settlements, liquor traffic tax, insurance taxes, annual fees of domestic and foreign corporations, excise tax, and public utilities tax. The chief expenditures are for the administration of public institutions, State highway departments, the Ohio State University, and the judiciary. The State has no bonded debt.

Politics and Government. There was no election for governor or other State officials, as the term of Governor Cox does not expire until January 11, 1915. The next State election will be held on November 3, 1914. Governor Cox was inaugurated on January 14, 1913. On the same day the governor sent a message to the legislature. It contained a recommendation for the passage of the amendment providing for the direct election of senators. This amendment was adopted by the legislature. Municipal elections through the State were of unusual interest owing to the fact that the State constitutional changes made in the summer of 1912 allowed the cities of the State to adopt each its own form of government. For the first time, therefore, municipal elections varied as to form. They occurred on November 3. At this election the city of Dayton, having previously adopted a new charter, elected its first commission under its chosen city-manager plan. The city of Springfield likewise adopted the commission form of government and chose its first governing board. In several cities during the year proposed charters establishing the commission form of government, or some slight variation of it, were rejected at the polls. In general at the November election the Republicans made gains. In Cincinnati, Henry T. Hunt, the reform Democratic mayor, was defeated by Frederick S. Spiegel, Republican. Karl Keller, Republican, was elected mayor of Toledo to succeed Brand Whitlock, Independent, who was not a candidate for renomination. The election in Cleveland was of importance, owing to the fact that partisanship had been wholly eliminated by the new charter, approved on July 1, and candidates for mayor and council ran as nonpartisan candidates. Mayor Newton D. Baker, elected two years previously as a Democrat, was reëlected by a reduced majority. At these elections four proposed amendments to the State constitution were submitted, but only one of them was approved. Amendments to establish the short ballot in State and county offices and to exempt local bonds from taxation were rejected; one making women eligible to appointment for certain State offices was indorsed. The new license law went into effect on November 22. Under the amendment to the constitution providing for home rule for cities, a new charter was proposed for the city of Cleveland in June. Under this charter nomination for city office was to be by petition only, and a nonpartisan ballot in municipal elections was provided for. The short ballot is included, as is also the recall for mayor and councilmen. No party designation is permitted by the ballot. According to the charter the mayor is to have a cabinet composed of the directors of the departments of law, finance, service, safety, and welfare. The department of service is to have charge of such public functions as thoroughfares, street-cleaning, garbage, sewerage, water supply, filtration, and a municipal lighting plant. The department of welfare is to comprise the divisions of health, charities and corrections, and public recreation. The last named division comprises the recreational uses of parks, playgrounds, bathing beaches, etc. The welfare department has large powers. It includes a vocational guidance bureau, which will have the coöperation of a general commission which has been making an exhaustive study of the subject.

LEGISLATION. The legislature met in 1913 and passed an unusual number of important measures. Among these were the following: An act compelling lobbyists to file a statement with the secretary of State and obtain a certificate. They must also file statements of disbursements. A measure was passed that in civil actions a jury may render a verdict upon the concurrence of three-fourths or more of its number. A legislative reference bureau was established. Measures were passed providing for indeterminate sentences to the penitentiary for all felonies except treason and murder in the first degree. A stringent white slave law was enacted. A commission was appointed to investigate rural credits, to coöperate with the Southern Commercial Congress, and to visit Europe with that congress. A law was passed that wages must be paid at least each calendar month by all employers who employ five or more regular employes in the State. An enactment was passed providing for a ten-hour day for females in certain employments and other provisions regulating conditions for their employment. Various State boards having to do with labor and industrial matters were abolished, and in their place was created an industrial commission composed of three members with very broad powers. An eight-hour law for workmen on public works was enacted. An agricultural commission was established and measures were passed, putting into effect the Torrens' land title system. The legislature enacted a corrupt practices act. Measures were passed providing for a system of primary election for members of Congress, State, county, and municipal officers, delegates to national and State conventions, and members of controlling committees of political parties. A long act provides for several plans for municipal government called the commission plan, the city manager plan, and the federal plan. Each plan provides that all laws pertaining to the initiative, referendum, and recall in municipalities shall apply to each such plan. Ten per cent. of the voters of any municipality may by petition have the question of organizing under any one of the plans submitted to vote. A measure was passed regulating the circulation of initiative and referendum petitions. Persons circulating these must file sworn statements of disbursements, and it is made a crime for any person to accept anything of value for signing a petition. Measure was passed for providing the use of school grounds and houses and other State buildings as social centres for the entertainment and education of the people. A State board for the censorship of motion-picture films was created. A public utilities commission of three members was established. This succeeds to the powers of the former railroad commission. See also LIQUOR REGULATION.

STATE GOVERNMENT. Governor, James M. Cox; Lieutenant-Governor, W. A. Greenlund; Secretary of State, Charles H. Graves; Treasurer, J. P. Brennan; Auditor, A. V. Donahey; Attorney-General, Timothy S. Hogan; Adjutant-General, G. N. Wood; Commissioner of Insurance, Edmund H. Moore; Superintendent of Education, Frank W. Miller—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Hugh L. Nichols, Democrat; Associate Justices, James G. Johnson, Democrat; John A. Shauck, Republican; Maurice H. Donohue, Democrat; J. F. Wilkin, Democrat; O. Newman, Democrat; R. M. Wanamaker, Progressive; Clerk, Frank McKean, Democrat.

STATE LEGISLATURE, 1913. Republicans: Senate, 7; House, 33; joint ballot, 40. Democrats: Senate, 26; House, 87; joint ballot, 113. Progressives: Senate, 0; House, 3; joint ballot, 3. Democratic majority: Senate, 19; House, 51; joint ballot, 70.

The names of senators and representatives to Congress will be found in the article UNITED STATES, section *Congress*.

OHIO STATE UNIVERSITY. An institution of higher learning, founded in 1870 at Columbus. The total enrollment in all departments in December, 1913, was 3715. The faculty numbered about 200. There were no notable changes in the faculty during the year, and no noteworthy benefactions were received. The productive funds amount to about $1,000,000. There are about 130,000 volumes in the library. The president is W. I. Thompson, E.D., LL.D.

OHIO UNIVERSITY. An institution for higher education at Athens, Ohio, founded in 1804. The enrollment in all departments in the collegiate year 1912-13 was 2037. The faculty numbered 85. A head of the College of Music was appointed in 1913. No noteworthy benefactions were received during the year. The productive funds amount to about $120,000, and the income from all sources to about $324,000. The library contains about 45,000 volumes. The president is Alston Ellis, Ph.D., LL.D.

OHIO VALLEY FLOOD. One of the most serious floods and catastrophes that ever befell the United States occurred during the last week of March and early part of April, 1913, along the Ohio Valley, resulting in damages estimated by the United States Geological Survey at $180,873,097, including damage to railroads and traction lines, but exclusive of municipal and county improvements, such as water works, sewers, roads, bridges, etc., which were estimated at $10,662,183, while the direct loss of life was estimated at 415, though, of course, the indirect mortality due to exposure and incident disease must have reached larger figures.

The flood was due to excessive rainfall over a comparatively large area whereby the rivers of northern Indiana and Ohio, notably the Miami, the Scioto, and the Muskingum were swollen to such dimenisons that the ordinary channels were unable to take care of the flow of water which carried with it sudden and far-reaching disaster and ruin. There was no failure of storage dams, or the general failure of dams of any kind. It was simply a case of the rivers being unable to carry the large amount of precipitation and as a result their banks were overflowed and the effect was manifested, not only on the tributary systems, but on the Ohio itself so far down as Cairo, Ill., where it joins the Mississippi. In addition, the tributaries of the Ohio from the east and south were discharging also large volumes of water which were in excess of the average flood amounts, but not up to their previously recorded maximum. The damage done extended from such sites as Dayton, Ohio, and Hamilton, Ohio, where estimates of $100,000,000 and $15,000,000 respectively, were made on the losses sustained by these cities which were submerged, to the rural districts where farm buildings were destroyed together with animals, and agricultural land washed away leaving, instead of fertile soil, barren gravel. The effect of the flood was further increased by the fact that the ground of the watershed was not frozen, but being practically saturated by previous rains, was unable to store any considerable amount of the moisture so that it was discharged rapidly into the various streams which, at the time, were all of them well filled. Furthermore, for an emergency of this kind, the natural waterways themselves had been in nowise prepared, for various encroachments had taken place and the banks and the channels were contracted or obstructed often by bridge piers, abutments, and embankments, in fact, all conditions were very favorable for such a flood as resulted from the unusual rainfall.

On March 22 a storm had passed down the St. Lawrence Valley and was accompanied by rain of moderate intensity, which served to moisten the soil of the Ohio basin. On the five days from March 23 to March 27 two storms occurred with continuous rain, which produced a total precipitation for the five days of 11.10 inches at Bellefontaine, Ohio, and ran from 6 to 10.7 inches in other parts of the State. The first of these storms struck Ohio from the west and extended generally throughout the country in its easterly course. On the night of the 23rd of March there were small tornadic storms in Michigan, Illinois, Iowa, and Nebraska, where a tornado at Omaha resulted not only in damage, but in the loss of numerous lives. The Miami River was the first large stream to reach alarming proportions, and at Dayton, Ohio, a crest stage of 29 feet, or about 8 feet higher than the previous record flood stage, 21.3 feet in 1866, was reached at 1 A.M., on March 26, and further down the river at 3 A.M., a maximum flood stage of 34.6 feet was attained. This condition was reflected on the Scioto River, though the crest of 37.8 feet, 9.5 feet higher than the previous maximum of March 24, 1898, was reached at 11 A.M., March 26. The same general condition was observed on the Muskingum River. All through Ohio new high water records were established and these conditions soon began to be reflected in the Ohio River itself. Record stages occurred at Marietta, Parkersburg, Huntington, Catlettsburg, Portsmouth, Maysville, Mount Vernon, Paducah and Cairo. Below Cairo the Mississippi River overflowed its banks in many places and at points broke through the levees, but the high water stage of 1912 was not reached.

Nor were the floods of March-April restricted to the States on the Ohio. Throughout eastern Indiana, Ohio, northern West Virginia, and northern New York there was a heavy rainfall and all of the streams were swollen. In New York State the Genesee, Mohawk, and upper Hudson rivers were unable to carry the water in their normal channels and their banks were flooded overflowing the city streets. The result was that gas and electric supply was out of service, street car lines were interrupted, and the water pipes and sewers were also impaired. Railway and structural work naturally suffered and the effect was seen along the New York State Barge Canal.

As soon as the extent of the disaster was realized and the distress and other consequences likely to follow, the governor of Ohio ordered out the militia and declared martial law on the stricken districts. President Wilson sent all the available men of the public health service and of the medical department of the army to the stricken territory with such government supplies as were available. General Leonard Wood, the chief of staff of the army, was sent in person, and his ability as a physician, as well as a military officer, was of special value in restoring order and preventing the outbreak of dis-

ESTIMATE OF DAMAGES IN OHIO VALLEY BY FLOOD OF MARCH-APRIL, 1913

(Total population, 14,400,000; drainage area, 203,000 square miles)

State	Towns which reported *	Lives lost	Buildings flooded	Bridges destroyed	Total	Municipal and county improvements †
Illinois	11	2	380	...	$ 1,003,750	$ 7,250
Indiana	47	39	15,450	180	15,480,143	3,113,900
Kentucky	24	1	6,721	6	1,881,500	130,000
New York	1	0	200	8	150,000	10,000
Ohio	94	367	33,833	220	143,197,492‡	7,296,083
Pennsylvania	7	2	690	4	2,935,000	22,000
Tennessee	1	0	100	1	50,000	....
West Virginia	21	4	2,669	...	3,477,500	82,950
Total	206	415	60,043	419	168,175,385	10,662,183

Total damage to railroads	$ 12,221,671
Total damage to traction lines	476,041
Total (including railroads and traction lines)	$180,873,097

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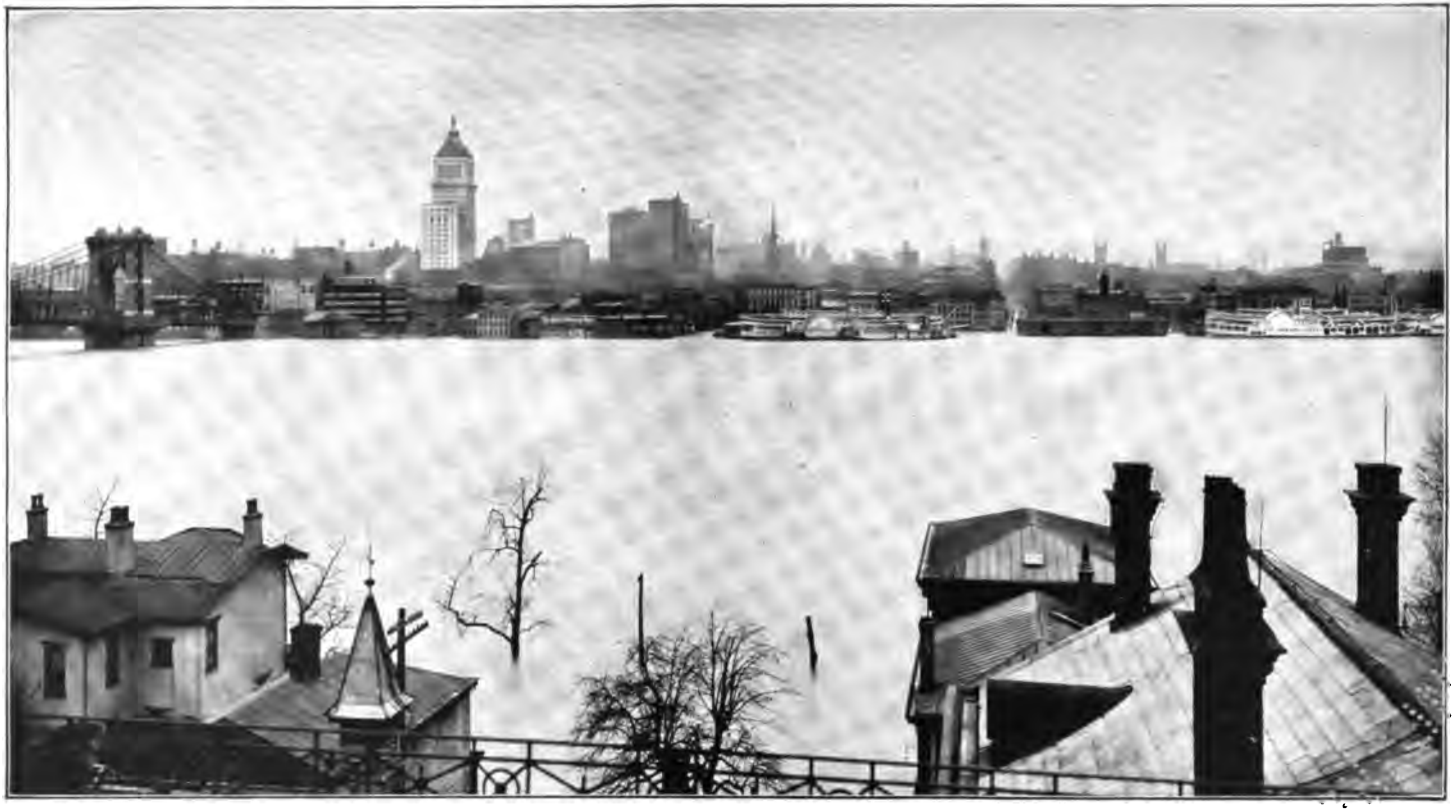
* Includes smaller towns reported by officials to whom requests for estimates were sent.

† Waterworks, sewers, roads, county bridges, street railways, etc.

‡ Includes $150,000 for State canals in Ohio.



Photograph from United States Geological Survey, Water-Supply Paper 334

THE OHIO VALLEY FLOOD

OHIO RIVER AT CINCINNATI, OHIO, ARPIL 4, 1913

Photograph taken from Newport, Kentucky, just above the mouth of the Licking River. The crest of the flood was four feet higher than the point shown on the pier of the suspension bridge on the left

ease. The relief of suffering was under the direction of the National Red Cross Association, which had just begun work at Omaha in relieving the distress occasioned by the tornado. The relief work in the Ohio Valley was well organized and was conducted with an efficiency in striking contrast to that manifested in previous catastrophes. There were competent direction and efficient distribution of the food and supplies that were hurried to the stricken district as fast as the railway facilities were restored and communication established. The Red Cross Society expended $2,343,601 in connection with its relief work and in addition there were local relief funds amounting to about $600,000, these items not being included in the estimates of damage made by the United States Geological Survey.

Naturally a vast amount of damage was done to telegraph lines and railways, the telegraph wires being put out of commission early in the disaster, while the flood carried away bridges and tracks to an extraordinary degree that was reflected in diminished net earnings for the railways involved. On the Pennsylvania lines alone 24 bridges were lost and 50 damaged, while the repairs and replacements of such structures were estimated at $1,027,116. The temporary trestles built by this system to replace damaged bridges aggregated in length 3.92 miles, while the length of road requiring repairs was equivalent to 189.6 miles of single track. The aggregate damage to the Pennsylvania system alone was estimated at $3,600,000. Other systems were correspondingly affected and the restoration of normal conditions occupied the railway engineers the greater part of the spring, but traffic was eventually restored.

There have been other floods in the Ohio Valley, notably in March-April, 1907, and in February, 1884, both of which were due also to the heavy rainfall, but the flood of 1913 was especially noteworthy on account of the exceptional magnitude and intensity of the storms, which were its direct cause and the fact that the greatest damage was done along the tributaries of the Ohio River, which in previous years had not been particularly effective in the production of floods on the Ohio River itself. Its origin was in the comparatively small area of the headwaters of the Muskingum, Scioto, Miami, and Wabash rivers, these four tributaries being responsible for the great damage and loss of life and for the high stages reached on the Ohio at and below Marietta. The southern tributaries of the Ohio, while they contributed a fair proportion of the water in the main stream, had but little disastrous effect.

As a result of the floods on the Ohio and Mississippi rivers and the great damage done, much attention was given to the discussion of various means for their control, or prevention, and an engineering commission was appointed by the United States government, while the various cities in the flood district which had been damaged for the most part employed expert advice to guard against similar damage in the future. In general, the main points of discussion were whether control reservoirs should be provided, and they were advocated by a number of authorities both for the headwaters of the Mississippi and for various tributary streams. So far as the Mississippi was concerned, it was the concensus of the best engineering opinion that the improvement in construction of levees was the most advantageous means of protecting the land along the banks and that the levees, rather than increasing the danger, had done much to diminish it, and their inadequacy, rather than the system itself, was at fault. Likewise on the Ohio River it was recommended, especially at Cincinnati, that levees be built, and it was also recommended that the various cities which were threatened should face the situation fairly and provide for bridges of adequate span and protection to the banks, avoiding encroachment by building other structures which would be affected by the flood at time of high water. In connection with the bridges it was found in the damaged district that there had been a widespread tendency to diminish the length of spans by running abutments out into the channel so that in time of flood an abnormal strain was put upon piers and abutments.

It is estimated that the average annual loss by flood in the United States is in excess of $50,000,000, and this fact alone has aroused interest in the national, State, and local investigations that were in progress during the year for the amelioration of conditions. The national government, both through its corps of engineers of the United States army and the division of hydrography of the United States Geological Survey, had under way important investigations. Studies were made of the flood of 1913 in comparison with other floods and the Geological Survey published Water Supply Paper 334, "The Ohio Valley Flood of March-April, 1913." The commission of army engineers also published an illuminating report on this subject.

So important was the recognition of the need for national regulation of rivers and waterways that many schemes were proposed, one of which was embodied in a bill introduced in Congress by Senator Newlands, of Nevada, which appropriated $60,000,000 per annum for river regulation, though no particular means were prescribed for undertaking the work. This bill failed of passage, as it was the general belief that the problems should be completely investigated in view of the meteorological, hydrological, hydrographical, and other conditions before a definite campaign, involving large expenditures, was undertaken.

OHIO WESLEYAN UNIVERSITY. An institution for higher education, founded under the auspices of the Methodist Episcopal Church at Delaware, in 1842. The number of students enrolled in the college departments in 1913 was 813. In the department of music, were 116; in the academy, 40; in the art department, 12; in the post-graduate students, 6; special students, 81. The faculty numbered 66. There were no noteworthy changes in the faculty during the year and no large benefactions were received. The productive funds amount to about $1,000,000, and the annual income to about $150,000. The library contains about 65,000 volumes. The president is Herbert Welch, D.D.

OIL, CRUDE. See PETROLEUM.

OIL ENGINES. See INTERNAL COMBUSTION ENGINES.

OIL FUEL. See BATTLESHIPS.

OKLAHOMA. POPULATION. The population of the State in 1910 was 1,657,155. According to the estimates of the Bureau of the Census, made in 1913, the population of that year was 1,938,761.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in

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the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	4,750,000	52,250,000	$37,620,000
	1912	5,448,000	101,878,000	41,770,000
Wheat	1913	1,750,000	17,500,000	14,350,000
	1912	1,570,000	20,096,000	15,072,000
Oats	1913	1,030,000	18,540,000	8,343,000
	1912	936,000	23,494,000	7,988,000
Rye	1913	5,000	48,000	41,000
	1912	4,000	48,000	42,000
Potatoes.....	1913	32,000	1,920,000	2,016,000
	1912	29,000	1,740,000	1,618,000
Hay	1913	450,000	*a* 382,000	3,973,000
	1912	385,000	481,000	3,559,000
Cotton	1913	3,019,000	*b* 820,000	44,740,000
	1912	2,665,000	1,021,000	55,241,000

a Tons. *b* Bales.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $53,614,130, compared with $43,036,253 in 1911.

The oil fields of Oklahoma are included in the Kansas-Oklahoma fields. In the volume of oil produced, the State ranks second, being surpassed only by California. The production in 1912 was 51,427,071 barrels, a decrease from the production of 1911, which was 56,069,637 barrels. Several oil pools of considerable extent were discovered in 1912. A pool was developed in Creek County which yielded 150 barrels a day. This was in the sand found at 2180 feet. Indications point to other discoveries in similar locations. The total number of wells completed in the State in 1912 was 5993. Of these 4712 were in oil.

The total coal production of the State in 1912 was 3,675,418 short tons, valued at $7,867,331. In 1911 the production was 3,074,242 short tons. The year 1912 was the first in the ten years to encourage the coal mine operators of Oklahoma. For this period the industry in the State had been practically at a standstill. The reason for the increased activity in 1912 appeared to be the diminution in the supply of natural gas and fuel oil, in the markets tributary to Oklahoma coal. The number of men employed in the coal mines of the State in 1912 was 8785, compared with 8790 in 1911. There were 99 fatal accidents in the coal mines of the State in 1912. This large number was due to the loss of 73 lives in an explosion of gas at the San Bois mines and at the McCutcheon mines March 23, 1912.

CHARITIES AND CORRECTIONS. The latest report of the commissioner of charities and corrections of Oklahoma is for the year ending October 1, 1912. The State institutions include the Oklahoma State Home at Pryor; the Oklahoma School for the Blind at Fort Gibson; the Industrial Institute for the Deaf, Blind, and Orphans (colored); the Confederate Soldiers' Home at Ardmore; State School for the Deaf at Sulphur; the Oklahoma State Training School at Paul's Valley; the Sanitorium Company Hospital at Norman; the State Penitentiary at McAlester; and the State Reformatory at Granite.

TRANSPORTATION. The total number of miles of single track steam railway in the State on January 1, 1913, was 6323. Of this, the St. Louis and San Francisco Railroad had the largest mileage, 1497. The Chicago, Rock Island, and Pacific had 13,026; the Atchison, Topeka, and Santa Fé 850; and the Missouri, Kansas, and Texas 691. During 1913 the Clinton and Oklahoma Western Railroad constructed 30 miles of track; the Missouri, Oklahoma, and Gulf Railroad, 102 miles; and the Wichita Falls and Northwestern Railroad 151.

EDUCATION. The total school population in the State in 1912 was 541,828. The total enrollment in public schools was 438,901. The average daily attendance was 271,694. There were 3390 male teachers and 8350 female teachers. The average salary for male teachers in schools of the first grade was $80.97, and for females $60.79.

POLITICS AND GOVERNMENT. There was no election for State officers, as the term of Governor Cruce does not expire until 1915. The next State election will be held on November 3, 1914. On January 21, the legislature reëlected Robert L. Owen United States senator. Two important decisions made by the Supreme Court during the year affected Oklahoma. On May 26 the decisions were passed down, declaring that the employers' liability law as applied to interstate commerce, was superseded by the federal law. The other decision prohibited the introduction of liquor in counties occupied by Indians. See also LIQUOR REGULATION..

The location of the permanent seat of State government was finally determined in favor of Oklahoma City in a suit in the Supreme Court which denied the validity of the referendum petitions on the Capitol appropriation measure.

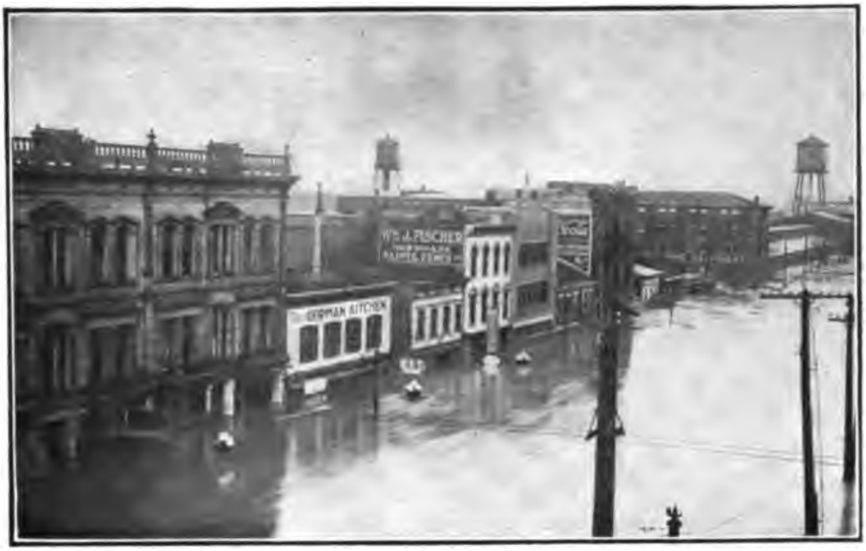
STATE GOVERNMENT. Governor, Lee Cruce; Lieutenant-Governor, J. J. McAlester; Secretary of State, Ben. F. Harrison; Treasurer, Robert Dunlop; Auditor, J. C. McClelland; Attorney-General, Charles West; Commissioner of Insurance, A. L. Welch; Commissioner of Education, R. H. Wilson; President Board of Agriculture, G. T. Bryan; Adjutant-General, F. M. Canton—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, John B. Turner; Associate Justices, Mathew J. Kane, Robert L. Williams, Jesse J. Dunn, and Samuel W. Hayes; Clerk of the Court, W. H. L. Campbell—all Democrats.

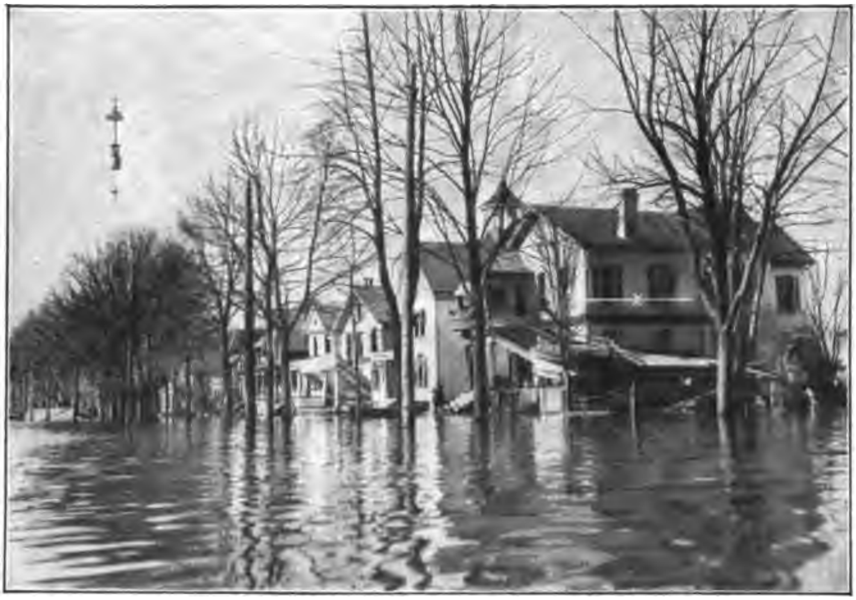
STATE LEGISLATURE, 1913. Republicans: Senate, 8; House, 19; joint ballot, 27. Democrats: Senate, 36; House, 80; joint ballot, 116. Democratic majority: Senate, 28; House, 89; joint ballot, 117.

The names of senators and representatives to Congress will be found in the article UNITED STATES, section *Congress*.

OLD-AGE PENSIONS. The chief development in 1913 in the world-wide old-age pension movement was the enactment of a universal compulsory law in Sweden. This is the first and only universal scheme ever enacted. Public systems are now found in Austria, Australia, Belgium, Denmark, Finland, France, Germany, Great Britain, Ireland, New South Wales, New Zealand, Sweden, and Victoria. In the United States agitation for old-age pensions continued, but no public action of importance was taken. The American Association for Labor Legislation (q.v.) at a conference on social insurance discussed the pros and cons of private *versus* State, contributory *versus* non-contributory, voluntary *versus* compulsory pensions for Americans. At present the principal provision for retirement pensions is made by the great corporations, and civil pensions also have become more common in recent years.



HIGH STREET, HAMILTON, OHIO, AT DAYBREAK, MARCH 26, 1913



SECOND STREET, MARIETTA, OHIO, DURING FLOOD OF MARCH-APRIL, 1913, AFTER THE WATER HAD FALLEN

THE OHIO VALLEY FLOOD

Photographs from United States Geological Survey, Water-Supply Paper 334

Practically all railroads and the leading combinations make provision for retirement at ages ranging from 60 to 70. This is done on grounds of efficiency from the productive standpoint. See Workmen's Compensation and Widows Pensions.

Sweden. After more than twenty years agitation an old-age pension law was enacted in Sweden on July 24, 1913. This had been preceded by the appointment of an old age commission in 1905 which reported in 1907. Thereafter numerous attempts at legislation were defeated by the conservative element in Parliament. The Swedish law is unlike that of any other nation in that it is universal, applying to every man, woman, and child over sixteen years of age. Moreover, it is obligatory. People are divided into four classes according to their annual income: Class 1, those receiving under 500 kroner; Class 2, those with incomes of 500 to 799 kroner; Class 3, those receiving from 800 to 1099 kroner; and Class 4, those receiving 1100 kroner or over. These classes respectively pay annual premiums of three kroner (82½ cents), five kroner, eight kroner, and thirteen kroner. These premiums must be paid from the sixteenth to the sixty-sixth year, unless the person become incapacitated for labor. Unmarried women must pay their own premiums; fathers are expected to pay for their children between sixteen and eighteen years and husbands for wives. If a citizen is unable to pay, his premium must be paid by his commune. Employes of state railways, state telegraph, civil service already pensioned, and the clergy of the established church, together with their wives are exempted. Paupers also are exempted.

It was at first provided that persons with incomes exceeding 6000 kroner ($1650) should receive no pension; but later the act was made thoroughly democratic, pensions being authorized for every one over 66 years of age. The law provides higher pensions for men than for women. Every man will receive each year from his 67th year, or from the time of permanent incapacity, 30 per cent. of the premiums he has paid into the fund. Every woman will receive as an annual pension 24 per cent. of the sum she has contributed. On this basis the pensions of men will be 45, 75, 120, or 195 kroner according to class. Those of women will be 36, 60, 96, or 156 kroner. In order to increase these very meager pensions the act also provides for a supplementary payment whenever the total yearly income amounts to less than 300 kroner ($82.50). The state will pay three-fourths of this additional pension and the commune one-fourth. The administration of the law is simplified through the fact that both commune and state taxes have been assessed in proportion to income. There exists therefore adequate information regarding incomes. The administration is controlled by a central board of management. A representative of this board and a local committee for each commune will collect premiums and assign pensions.

OLEOMARGARINE. See Dairying.

OLIVE OIL. See Horticulture.

OLLIVIER, Emile. A French statesman and historian, died August 20, 1913. He was born at Marseilles in 1825. His father was a republican of a somewhat advanced type, and the youth was thrown into the society of men who were not only republicans, but believers in radical-racial reconstruction. He devoted himself early to the cause of individual liberty, and was ready to accept any form of government which could reconcile liberty with order. He conceived that such a government was about to exist in a liberalized empire to be established by Napoleon III., but his dream was shattered when Napoleon seized the supreme power in December, 1851. In 1857 he began his active political career. At this time the fear of anarchy which had contributed largely to the establishment of the Second Empire, had begun to fade, and those who opposed the government saw a chance of capturing some cities in the legislative assembly. Ollivier was put forward as a contestant for one of these divisions and was elected. He was one of the famous five who represented the opposition feeling in Paris when the Second Empire was at its zenith. During the years that followed, he was one of the most conspicuous champions of the cause of reasonable liberty, both in France and in other countries of Europe. When the empire began to decline, and Napoleon saw the feasibility of bringing about a form of constitutional government, he opened negotiations with Ollivier, the most brilliant of advocates of constitutional reform, and in January, 1870, the latter was called upon to form what proved to be the last ministry of the Second Empire constructed with the full approval of the emperor. Ollivier was at the head of affairs on the outbreak of the war with Germany in 1870, but he soon found his position impossible and resigned. He devoted the remainder of his life to writing on current questions, notably those affecting the church. His greatest work, *L'Empire Liberal*, began to appear in 1894. In the fourteenth volume of this work Ollivier made a detailed defense of his conduct in the days preceding the war, and appealed from the judgment of his countrymen to that of history. The last volume, published in 1913, dealt with the opening battles of the war in 1870, and the overthrow of the Ollivier ministry. Ollivier preserved a youthful figure to a great age. He was a powerful orator, with a voice distinguished for its quality. His literary gifts were remarkable, and the sketches of various men of letters, theologians, and philosophers, which he drew in his history of the Second Empire are likely to live. In addition to the works already mentioned, he wrote *Démocratie et Liberté; 19th Janvier, 1869; L'Eglise et l'Etat au Concile de Vatican* (1877); *1789-1889* (1889); *Michel Ange* (1890); *Marie Magdaleine* (1896).

OLMSTED, Marlin Edgar. An American public official, former member of Congress from Pennsylvania, died July 19, 1913. He was born in Potter County, Pa.; received an academic education; was admitted to the bar in 1878; engaged in practice at Harrisburg; was elected to the Fifty-fifth Congress in 1897; reëlected to successive Congresses up to and including the Fifty-seventh from the fourteenth Pennsylvania district; elected to the Fifty-eighth Congress from the eighteenth district; and was reelected successively up to and including the Sixty-second Congress of 1913. He was a prominent member, and was for a time chairman of the committee on insular affairs.

OMAN. An independent Mohammedan state in southeastern Arabia, under a sultan, subsidized by the Indian government, which retains a political agent at his court with the right to restrain the cession of territory to any power other than Great Britain. The area is about 82,000 square miles, the population about 500,000. The capital is Muscat, with 25,000 inhabitants. The main article of consumption and export is dates; other products are pearls, limes, mother-of-pearl, fish, fruits, hides, and skins. Imports 1912-13, Rs. 6,953,363 (British India Rs. 3,211,578, Great Britain Rs. 1,399,818, Belgium Rs. 1,515,398); exports Rs. 4,522,163 (dates Rs. 1,469,485, limes Rs. 100,950, cottons Rs. 56,199, hides and skins Rs. 48,830, mother-of-pearl Rs. 39,250, pearls Rs. 18,400. Vessels entered 133, of 168,516 tons. The inhabitants are Ibadites. The sultan, Seyyid Timor bin Feysal (born 1886) succeeded his father, Seyyid Feysal bin Turki, October 5, 1913. Major S. G. Knox was British agent in 1913.

History. A revolt against Sultan Seyyid Feysal bin Turki broke out at Nizwa, a town in the interior, on May 19. The rebellious factions—the Hinawia and Ghafiria parties—set up Salem bin Rashid as a rival to Seyyid Feysel and rapidly subdued Rustak, Zaki, Awabi, and other places. In July 400 sepoys were sent from India to the sultan to hold his position at Muscat. The revolt was at least partially due to the sultan's coöperation with British authorities in stopping the illicit Muskat traffic in firearms.

ONNES, Heike Kamerlingh. A Dutch scientist, awarded in 1913 the Nobel Prize for the greatest discovery in physics. He was born in 1853. His most notable work has been in connection with low temperatures. In 1911 he went farthest in the direction of absolute zero, coming within two degrees of the point which marks the complete absence of heat. He achieved this result by boiling helium in a vacuum. He is professor of physics at the University of Leiden, and has written many works dealing with physics.

ONTARIO. A province of the Dominion of Canada. Area, 260,862 square miles; population (census of June 1, 1911), 2,523,274 (2,182,947 in 1901). Including that portion of the Northwest Territories annexed to Ontario in 1912, the area is 407,262 square miles, and the population 2,527,292. Toronto is the provincial capital and after Montreal the largest city in Canada, with 376,538 inhabitants in 1911. A lieutenant-governor administers the province—Colonel Sir John Morison Gibson in 1913 (appointed September 22, 1908). Premier in 1913, Sir James P. Whitney. See section so entitled under Canada, Dominion of.

OPAL. See Gems and Precious Stones.

OPERA. See Music.

OPIUM HABIT. See Cocaine and Morphine Habit.

OPIUM TRADE. See China.

ORAL HYGIENE. See Education in the United States.

ORANGE FREE STATE, The. One of the four original provinces of the Union of South Africa (q.v.). Bloemfontein is the seat of the provincial government, with (May 7, 1911) 26,925 inhabitants; Jagersfontein had 9019; Harrismith, 6799; Kroonstad, 5700; Ladybrand, 3323; Bethlehem, 3172. Two railway lines, 74 miles in length, were opened during the year. Administrator (1913), Dr. A. E. W. Ramsbottom. See South Africa, Union of, for area, population, etc.

ORCHESTRAS. See Music.

ORE DEPOSITS. See Geology.

OREGLIA DI SANTO STEFANO, Luigi. An Italian Roman Catholic cardinal, died December 6, 1913. Born at Bebe Vaginena in 1828, he entered the church at an early age, and in 1866 became titular archbishop of Damietta. In 1873 he was created cardinal by Pius IX. He was more than once mentioned as a possibility for Pope. His life was almost entirely passed in Rome, and was devoted to work of the Curia. Reactionary in spirit as well as in ideas, his bitter opposition to attempts to liberalize and modernize the doctrine and administration of the church resulted in a great deal of resentment on the part of the younger generation of churchmen. Although he had in late years ceased to take an active part in the affairs of the Holy See, he was entirely in sympathy with the campaign conducted by Pius X. against modernism. As the last of the cardinals appointed by Pius X., he long possessed a peculiar prestige.

OREGON. Population. The population of the State in 1910 was 672,765. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 756,988.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	21,000	598,000	$ 419,000
	1912	20,000	630,000	472,000
Wheat	1913	750,000	15,717,000	11,788,000
	1912	842,000	21,018,000	15,132,000
Oats	1913	360,000	15,228,000	5,787,000
	1912	359,000	13,714,000	5,623,000
Rye	1913	20,000	350,000	262,000
	1912	22,000	352,000	246,000
Potatoes	1913	50,000	6,750,000	3,915,000
	1912	65,000	10,075,000	3,123,000
Hay	1913	825,000	[a]1,732,000	15,588,000
	1912	790,000	1,738,000	14,425,000

[a] Tons.

Mineral Production. The total value of the mineral products of the State in 1912 was $2,553,549, compared with $3,192,679 in 1911. The gold production of the State in 1912 was $770,041, compared with $633,407 in 1911. The largest yield of gold came, as usual from Baker County, the output of which was $484,041. The total output of deep mine gold was $580,945 and that from placers was $189,096. The silver output in 1912 was 57,081 fine ounces, compared with 45,221 ounces in 1911. The State produces a small amount of copper. In 1912 this amounted to 311,860 pounds, in 1911 125,943 pounds. The largest production in recent years has been from the Waldo district in Grant County. The production of coal is small. In 1912, it amounted to 41,637 short tons, valued at $108,276. On account of the large increase in the use of oil for fuel on the Pacific coast, the quantity of coal mined in the State decreased in recent years.

Transportation. The total miles of main line of railroad in the State in 1913 was 1354.80. The railroad having the longest mileage was the Southern Pacific. The Oregon and California Railroad, a branch of this company, had 367 miles of track; the Oregon Trunk Railway had 156; the Corvallis and Eastern Railway

140; the Pacific Railway and Navigation Company 91; the Oregon Western Railway and Navigation Company 95. During 1913 there were about 70 miles of railway construction. The mileage of electrical railways in the State in 1913 was 388.85.

EDUCATION. The total school population in June, 1913, was 196,675. The total enrollment was 133,622, and the average daily attendance 91,593. The male teachers numbered 1084, and the female 4406. The average monthly salary of male teachers was $84.53 and the female $61.79. The legislature of 1913 passed several important measures. Among them were laws establishing trade schools in districts of 20,000 inhabitants, measures relating to the improvement of evening schools, and providing for institute and teachers' training schools and for free text books.

FINANCE. The report of the State treasury is for the biennial period 1910-11-12. There was a balance in the treasury on October 1, 1912, of $424,913. The receipts for the two-year period ending September 30, 1912, was $8,307,182. The disbursements for the period amounted to $7,738,859, leaving cash in the treasury on October 1, 1912, of $993,736. The chief receipts are from taxation, and the chief expenditures are for education, State institutions, and State officers. There is no bonded debt.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the State Hospital, Salem; the Eastern Oregon State Hospital, Pendleton; Oregon State Penitentiary, Salem; State Training School, Salem; the State Tuberculosis Hospital, Salem; the State School of the Deaf, Salem; State Institution for Feeble-minded, Salem; State School for the Blind, Salem; Oregon Soldiers' Home, Roseburg; and the Industrial School for Girls, Salem. Provision was made for the establishment of the last-named institution in 1913, and appropriations for the purchase of grounds and building, also. The school will be for delinquent girls between the ages of 12 and 25. While it is under the State board of control, an advisory board consisting of three women in the State will be appointed by the governor. In addition to these institutions, there are a number of private institutions receiving State aid.

POLITICS AND GOVERNMENT. There was no election for State officers during the year, as the term of Governor West and the other State officials does not expire until January 1, 1915. The next State election will be held November 3, 1914. On January 21 the legislature elected Harry Lane, Democrat, United States senator to succeed Jonathan Bourne, Republican. The legislature of 1913 passed a number of amendments to the election laws of the State. Among these is a law providing for the permanent registration of voters. This law has since been declared unconstitutional. Other amendments covered the filing of nominating petitions and certificates of nomination, and the printing of pamphlet copies of any measures which may be referred to the people at subsequent elections. On September 24 the industrial welfare of the State adopted a ruling which fixed a minimum wage of $9.25 per week for adult women clerks who are not apprentices, and set 50 hours as the minimum week's work. In the election held on November 3, the workmen's compensation act was approved by the people, and a bill for the sterilization of habitual criminals was rejected by a State referendum. The Hood River County judge and commissioners were recalled. The county judge of Clackamas County met the same fate. A campaign for the extermination of rabbits was undertaken by the farmers of eastern Oregon in December.

LEGISLATION. The legislature met in 1913 and passed many important measures. Enactments were passed putting into effect the woman suffrage constitutional amendment, adopted in the election of November, 1912. Provision was made for the submission to the people of the constitutional amendment restricting suffrage to the citizens of the United States of both sexes, and eliminating persons of foreign birth prior to their full admission to the citizenship. Laws for the suppression of tuberculosis were enacted. A uniform warehouse receipts act was passed. The legislature enacted a measure providing for mothers' pensions. Delegates were appointed to investigate rural credits in Europe. Amendments were made to the direct primary and corrupt practices act. The Supreme Court was divided into two departments, which are to alternate in hearing and deciding cases—this for the more expeditious disposition of court business. A measure was passed abating disorderly houses. Another measure provides that male applicants for marriage license must produce a physician's certificate as to freedom from certain diseases. Still another measure authorized the sterilization of habitual criminals and degenerates. An industrial commission created supervisory authority over employment and wages of women and minors. An eight-hour law for workmen on public works was enacted, and other labor laws relating to safety devices, security of payments of wages, etc., were passed. The workmen's compensation act was adopted, but was suspended until November, 1913, for submission to vote by the people. Measures providing for old-age pensions and insurance by laborers against sickness and unemployment were considered, but not enacted. See also LIQUOR REGULATION.

STATE GOVERNMENT. Governor, Oswald West, Dem.; Secretary of State, Ben. W. Olcott, Rep.; State Treasurer, Thomas B. Kay, Rep.; Superintendent of Public Instruction, J. A. Churchill, Rep.; Adjutant-General, W. E. Finzer, Dem.; Attorney-General, A. M. Crawford, Rep.; Commissioner of Insurance, J. W. Ferguson, Dem.

JUDICIARY. Supreme Court: Chief Justice, Robert Eakin; Justices, Thomas A. McBride, Frank A. Moore, Henry J. Bean, and George H. Burnett; Clerk, J. C. Moreland—all Republicans.

STATE LEGISLATURE, 1913. Republicans: Senate, 28; House, 48; joint ballot, 76. Democrats: Senate, 2; House, 5; joint ballot, 7. Republican Progressive: Senate, 0; House 6; joint ballot, 6. Democrat Progressive: Senate, 0; House, 1; joint ballot, 1. Republican majority: Senate, 26; House, 36; joint ballot, 62.

The names of senators and representatives to Congress will be found in the article UNITED STATES, section *Congress*.

OREGON, UNIVERSITY OF. A State university for higher education, founded in 1876 at Eugene. The students enrolled in the several departments of the university in the autumn of 1913 numbered 1257. The faculty numbered 121. There were no noteworthy changes in the faculty during the year, and no important benefactions were received. The productive funds amount to about $190,000, and the annual income to about $360,000, most of which is appropriated by the State. The library contains 47,000 volumes. The president is Prince L. Campbell, LL.D.

ORNITHOLOGY. In the United States, the Audubon Society continued its agitation for bird preservation with gratifying results. By the provisions of the McLean act, in effect October 1, 1913, the Federal government assumed control of all migratory birds and game birds who do not remain permanently within the limits of one State. Regulations which were adopted and published in Circular No. 92 of the Bureau of the Biological Survey, U. S. Department of Agriculture, established a continuous closed season on all insectivorous birds, forbade hunting at night, and put various closed seasons on game birds. Attorney-General Carmody, of New York State, declared some of the provisions of this bill unconstitutional, but no decision on this matter had been reached by the end of the year. A provision in the United States tariff law, of 1913, forbade the importation of skins or feathers of birds, a measure aimed especially at the importation of plumage of birds of paradise, and of aigrettes. In this connection it should be noted that the German Colonial Office announced that no permits would be issued in 1914 for the killing of birds of paradise in German New Guinea.

In various writings of economic ornithologists in 1913 more recognition than usual was given to the fact that insectivorous birds do not confine their attention to harmful insects, but eat the beneficial species as well. Beal thought that the flycatchers, on the whole, do much good, though about one third of their food is composed of bees and wasps. Probably their greatest harm is done in killing parasitic hymenoptera. In California grasshopper outbreaks have to a large part been held in check by the work of blackbirds, kingbirds, shrikes, and meadow larks. Crows and crow blackbirds kill a great many white grubs, the larvæ of a beetle, which are due to appear in large numbers in 1914, in certain parts of the United States.

In the Southern United States it has been claimed that anthrax, hog cholera, and blackleg might be carried by turkey buzzards, in flying from carrion. Experiments by Darling and Bates indicated that the danger from this source has been overestimated, since when even pure cultures of anthrax were introduced into the alimentary canal of buzzards, none were to be found in the fæces. They might, however, carry germs adhering to their feet or feathers and thus spread contagion.

As stated in the YEAR BOOK for 1907, an attempt has been made to save the heath hen from extermination by providing a refuge on Martha's Vineyard. Field reported in 1913 that from four to five hundred birds were on the island. F. M. Chapman conducted an expedition to the Colombian Andes, to secure material for a habitat group of the bird life of Magdalena Valley. The expedition made an ornithological survey of this region, and collected 2300 birds. The British Museum acquired during the year 3315 specimens of humming birds from Mr. R. J. Balston. This, with the Gould collection, gives the museum one of the finest, if not the finest, collection of humming birds in the world.

ORR, JAMES. A Scotch theologian and educator, died September 6, 1913. He was born in 1844, and was educated at Glasgow University and the Theological Hall of the United Presbyterian Church, Scotland. He became a minister of this church in 1874, and continued in active pastorate until 1891. In the latter year he was elected to the chair of church history in the Theological Hall. Ten years later he was transfered to the chair of apologetics and theology in the Glasgow College of the United Free Church. In 1891 he was Kerr lecturer; and he lectured in America. His published writings include *Christian View of God and the World* (1893); *Early Church History and Literature* (1901); *The Problem of the Old Testament* (1905); *The Bible under Trial.* (1908); *The Virgin Birth of Christ* (1907); *The Resurrection of Jesus* (1908); and *Sin as a Problem of To-day* (1910).

ORROCK, JAMES. An English artist and writer, died May 9, 1913. He was born in Edinburgh in 1830; educated at Edinburgh University; began life as a dental surgeon, but at the age of thirty-five he gave up business to gratify his ambition to become an artist. He studied under Stuart Smith, John Burgess and at the Nottingham School of Art. In 1868 he was elected an associate of the Institute of Water Color Painters and became a constant exhibitor of landscapes. He was also an influential member of the council of the institute and was mainly responsible for the new galleries in Piccadilly, the reconstruction of the institute, and the grant of the title "Royal." In addition to his work as an artist he became a well-known collector and connoisseur. He presented to the South Kensington Museum and the Glasgow Corporation Gallery many important pictures and water-color drawings. Among his published writings were: *Essays on Turner, Muller, Cox, Barrett, Hunt, Constable; Essays on English Art; True Art; The English Watercolour Art; Light and Water-colour.*

O'SHAUGHNESSY. See MEXICO, *History.*

OSMIUM. See CHEMISTRY.

OTTOMAN EMPIRE. See TURKEY.

OWEN-GLASS BILL. See BANKS AND BANKING, and UNITED STATES, *History.*

OYSTER INDUSTRY. See FISH AND FISHERIES.

PAGE, WALTER HINES. American ambassador to Great Britain. He was born in Cary, N. C., in 1854; graduated from Randolph-Macon College in 1876; studied at Johns Hopkins University, where he won a Greek fellowship; and on leaving Johns Hopkins he began work as a newspaper writer and became a reporter on the *Gazette* of St. Joseph, Mo. His success in securing the acceptance by the *Atlantic Monthly* of *A Social Study of an Old Southern Borough* encouraged him to travel through the South, writing letters to several important newspapers in the North. For two years he was special correspondent to the New York *World*, one of his investigations being among the Mormons of Utah. He then established the *State Chronicle* at Raleigh, S. C. This he soon discontinued on account of a lack of financial success. After having inspired the creation of the industrial and mechanical college at Raleigh, Mr. Page removed to New York. For a time he wrote editorials for the *Evening Post*, and contributed to *Harper's Weekly*, and the *Atlantic Monthly*. In 1880 he joined the staff of the *Forum*, and in 1890 became editor of that magazine. Five years later he was asked to become literary adviser to Houghton, Mifflin & Company, and in the following year he took the editorship of the *Atlantic Monthly*. After three years in this position he returned to New York, and for a short time was literary adviser to Harper & Brothers. He also edited the Harper-McClure *Encyclopædia*. In the same year, however, he became a member of the newly established firm of Doubleday, Page & Company, which in 1900 established the *World's Work*, of which Mr. Page became editor. He continued in this position until his appointment as ambassador. Mr. Page, in addition to writing many articles for the *World's Work*, contributed to other periodicals, and took an active interest in public affairs. He was one of the most prominent advocates and workers for the nomination and election of President Wilson. Always particularly interested in the industrial development of the South, he is the author of *The Rebuilding of Old Commonwealths* (1902), a series of essays on the progress of the South. See also Great Britain, *History;* Mexico, *History;* and United States, *History*.

PAHANG. The easternmost state of the Federated Malay States (q.v.). The inhabitants practice agriculture and mining. Area in 1909, planted to rubber, 20,271 acres; rice, 36,793; cocoanuts, 15,735; tapioca, 2262. Tin export in 1911, 1,436,156 Straits Settlements dollars; tin ore, 2,693,819; gold (bullion), 262,160; rubber, 28,319; tapioca, 24,645; copra, 17,185; rattans and canes, 54,008; gutta, 47,891; etc.—total exports, 4,890,639 (4,048,025 in 1910). Total imports, 2,277,768 S. S. dollars (rice, 480,233; opium, 285,256; tobacco and mfrs., 91,367; spirits, 46,622; swine, 78,248; hardware, 225.451; beer and stout, 21,679; cotton goods, 22,738 plain and 26,036 printed; 17,969, tea; etc.), against 2,140,973 in 1910. The Gemas-Semantan Railway is being extended to the borders of Kolantan. The Pahang is navigable for small craft for 232 miles. The capital of the state is Kuala Lipis. The sultan (Ahmad Maătham Shah bin Almerhum Ali) and the regent reside at Pekan, the old capital, near the mouth of the Pahang. The British resident (1913) is E. J. Brewster.

PAINTING AND SCULPTURE. The distinguishing point about the year's activities in art in America is the spread of all the various new movements which have come to a head in Europe. Little exhibitions of post-impressionists, and of representatives of later revolutionary movements, more ephemeral in character, have been held in America, from time to time in the last few years, at odd intervals and in odd corners. But this year the post-impressionists, cubists, futurists, expressionists, etc., have been brought before a wider public. They have penetrated established galleries, much to the disturbance of many people and the delight of others.

Compared to the great mass of regular standard exhibitions the showing of the revolutionists has been small; but they have created much excitement, affecting certain artists vitally, while others have only mocked, and dividing the public in the same manner between those who laughed and those who were seriously interested. Certainly this has been a year of awakening, offering wider opportunities than ever before to the unofficial artist to show his work to the public. It is not, perhaps, too much to say that 1913 marks the beginning of a new era in the creative efforts of our painters and sculptors, how important an era the future will tell; but, at least, the impetus is sufficiently great to exhilarate the rising generation of artists to an extent that is unparalleled in America. These developments, however, have not hindered the large general exhibitions, most of which have been comparatively little affected by the new influences.

Late in December, 1912, the Corcoran Art Gallery in Washington opened an exhibition of contemporary art, which remained on view during the first part of 1913. This exhibition is held once in two years, and is made up entirely of paintings, affording the visitor an excellent opportunity to study the progress of the American contemporary painter. Following the custom which guides most of our large exhibitions, little space is given to the type of painting which is not acceptable to a reasonably conservative jury. On the whole, a high percentage of the pictures were excellent examples of what might be called the acceptable type of painting.

A group of portraits by John Sargent was shown, including the immensely clever portrait of Joseph Pulitzer. The "Fencing-Master," by Gari Melchers, was a full-length of undoubted power, the most satisfying painting that Mr. Melchers has shown in some years. Cecilia Beaux, Elmer Schofield, Frank Benson, and Ben Foster were well represented by typical examples. Two of the most beautiful landscapes were by Ernest Lawson and Alden Weir; and Arthur B. Davies, with a poetical composition, Mary Cassatt with a group picture, and George Bellows with his "Polo Crowd," added to the artistic scope of the exhibition. Good pictures were shown by Childe Hassam, Frederick Frieseke, Willard Metcalf, Thomas Dewing, Paul Dougherty, Leopold Gould Seyffert, Ralph Clarkson, Fred Wagner, and Eugene Speicher, while Kathleen McEnery and A. G. Warshawsky brought the general tone of the exhibition as closely as could be expected to the unconventional. On the whole, it was a sound, conservative showing, that struck a truly American note, in which the arrived painter dominated and a high standard of workmanship was maintained.

Early in February, the Architectural League of New York opened its annual exhibition in which painters, sculptors, and architects take part. The architectural department of the exhibition is necessarily made up mostly of photographs and space does not permit of an extensive display of semi-completed mural decorations. A number of sketches for decorations were exhibited, and served to indicate how rare is the good mural decorator. The most interesting part of the exhibition was made up of sculpture, particularly of the work shown by the scholarship student of the American Academy at Rome, Paul Manship, whose archaistic formula is happily combined with a solid understanding of sculptural form. Within the year, Mr. Manship has gained an unprecedented success, partly due, no doubt, to the favor he has met with in the eyes of more than one good architect, who has grasped the unusually decorative possibilities of his pronounced style. As a rule, the Architectural League exhibition is unsatisfactory, not merely because it is timid and conservative in the kind of painting and sculpture that it brings out, but because the architect is under such a heavy handicap. If he presents his work in the manner that would be of most interest to his fellow worker he takes the risk of meeting with no attention from the general public. And if he appeals to the general public he is compelled to eliminate much material that would be of greatest interest to the practicing architect.

February is a month of great activity, and before the architects' exhibit had closed in New York, the 108th annual exhibition of the Pennsylvania Academy opened in Philadelphia. This event has with justice ranked, in the past, as one of the most comprehensive exhibitions of the work of the contemporary American painter, and it also gives considerable space to sculpture.

But the international exhibition of modern art, which will be referred to later, has brought out the fact that the managers of most of our large exhibitions have more and more fallen into the habit of inviting paintings by the same artists year after year. And the Pennsylvania Academy, although the most courageous of the annual exhibitions, has come in time to consist largely of the works of painters who are continually appearing on all official occasions. A great percentage of the works of well-known men had previously been shown in other parts of the country. Once more we are brought face to face with the fact that we have many capable artists of sound traditions, especially among the landscape painters, while, as in all other countries, the artist of rich imagination and power is rare to say the least. Most of the paintings may be described as of the type suitable for the home, easel pictures of moderate size with here and there a larger canvas.

Among the painters, good work was shown by George Bellows, Robert Henri, Leopold Gould Seyffert, Gari Melchers, Alden Weir, Lydia Emmet, Howard Cushing, George and Amiard Oberteuffer, Arthur B. Carles, Anne Goldthwaite, and Helen Turner. The group that helped most to give the exhibition a non-academic flavor consisted of William Glackens, Ernest Lawson, James Preston, Arthur B. Davies, Kathleen McEnery, Putnam Brinley, Henry Glintenkamp and Gus Mager, all of whom showed paintings of distinct individuality. In sculpture there were many good small works of beauty. "On the Threshold" was shown by Edith Woodman Burroughs, and capable modeling was seen in works by Mahonri Young, Chester Beach, Paul Bartlett, Linsey Morris Sterling, and a long list of other artists. The fact is that the American sculptor has little opportunity to show anything but small models and these in a manner which does not allow of their being seen under favorable conditions.

By far the most important exhibition of the year and, in fact, of many years, was the International Exhibition of Modern Art, held by the American Association of Painters and Sculptors in New York. No prizes were awarded, and the exhibition was characterized throughout by its antipathy to official forms. The official commercial picture, manufactured to sell, which plays such an important part in most exhibitions, was blackballed. Many inept paintings were shown, but the ineptitudes were technical rather than spiritual. There was a long list of beautiful pictures, and withal a remarkably high standard of spontaneity and sincerity. The avowed object of the exhibition was to show to the American public the development of painting throughout the nineteenth century, and in spite of immense difficulties this object has to all intents and purposes attained. The large armory where the exhibition was held, was divided into eighteen galleries, and over a thousand works were shown, for the most part paintings and drawings.

Much adverse criticism was caused by the fact that the cubists, the expressionists, and the post-impressionists were represented, and few people not in sympathy with the large idea back of the exhibition stopped to consider and to separate the genuine from the specious manifestations in modern art. The association holding the exhibition behaved neither as jury nor judge, issuing a statement to the effect that: "In getting together the works of the European moderns the society has embarked on no propaganda. It proposes to enter no controversy with any institution. Its sole object is to put the paintings, sculptures, and so on, on exhibition so that the intelligent may judge for themselves by themselves."

With the earlier nineteenth century painting as a starting point, it was possible to gain some idea of the direction in which painting is now going, and it was possible to comprehend to some degree in a manner hitherto not permitted in this country, the thought of the American and European painters of to-day.

From beginning to end the exhibition attracted great numbers of visitors, some among them drawn by certain notorious pictures, but for the most part, the crowd was intensely interested, and ardent serious discussion for or against was heard on all sides. Agreeable chatter was replaced by interest, discussion, and the clashing of prejudices, tending on the whole toward increased liberality of spirit. For the first time it was brought home to the great public that the chief function of art is not to represent, but to express a point of view, through the medium of representative interpretation.

The exhibition brought to public notice here in America the work of painters who have been accepted in Europe for a generation, such as Paul Cézanne, interesting not only for himself, but because he has influenced scores of European painters and begins strongly to affect many of our own younger men. Daumier, Manet, Degas, Puvis de Chavannes, Monet, already known here, were duly represented, if not by work of preëminent importance. But the line of development was visible, from these men onward. They had already been accepted here, but Gauguin and Van Gogh, who with Cézanne, have been legitimately followed as well as servilely imitated, were shown for the first time.

To go back a little, a glimpse of the early nineteenth century was given in the copy of Ingres's "Andromeda," by Whistler, a fair Delacroix, two fine Daumiers, one Courbet, and two Corots, several delicate Mathew

Maris, several paintings and drawings by Puvis de Chavannes, brought the spectator rearer to his own time. The impressionists were more fully represented. There were three Manets, none of them great examples, four fine Monets, several landscapes by Pissarro and Sisley, four lovely Renoirs, a number of canvases by Toulouse-Lautrec, an excellent Mary Cassatt, so that a certain coherent development, culminating in the work which truly represents our own time could be observed. Cézanne, Gauguin, and Van Gogh continued the development. With Matisse and the cubists a violent dislocation occurred, although even in Matisse, with all his arrant affectations, we see vaguely what the living artists of to-day are attempting, namely to liberate themselves from what might be called the domination of the third dimension.

Of our own artists, Alden Weir and Childe Hassam both sent works that showed their art at its best. Arthur B. Davies, Ernest Lawson, William Glackens, Allen Tucker, Putnam Brinley, Robert Henri, George Bellows, John Sloan, George Luke, Jerome Myers, Eugene Higgins, a painter of somber imaginative power, Maurice Prendergast, James Preston, and a long list of well-known men, some of them familiar to the regular exhibition visitor, others debarred from official sanction, sent strictly uncommercial and genuine artistic work, which helped to make the American half of the exhibition hold its own amazingly. And in addition there were a great number of pictures which no regulation academic jury would have passed, but which maintained the fine uncommercial standard of the exhibition, and proclaimed the cause of spontaneity and sincerity.

Art must either be abstract design or interpretation by means naturalistically recognizable. The cubists neither designed with distinction, nor interpreted imaginatively, but the gallery devoted to their work attracted both earnest admiration and extreme ridicule. The cubists, however, were but a small part of the modern work shown in America for the first time. Among French artists widely-known abroad, and never shown here, may be mentioned Pierre Bonnard, Maurice Denis, Felix Valloton, Vuillard, and other men of importance with whose work the Euoprean amateur is familiar. The present day artistic thought of France was further illustrated by many other men, while Germany, Sweden, and England were represented by Slevogt, Munch, Augustus John, Charles Conder and other artists who are not met with in every-day exhibitions.

The Americans were represented by comparatively few of the names that appear over and over again. There was nothing by Sargent or his school; but Theodore Robinson, John Twachtman, Albert P. Ryder, all genuine artists, who have never received proper tribute, were represented. Great care was evidently used to keep out unsympathetic work, and to lend the exhibition the life-giving quality of a certain homogeneity.

Neither in the spring or in the winter exhibition of the National Academy was there a trace of the influences set at work by the International Exhibition of Modern Art, and this was, in a sense, fortunate, for healthy growth demands the presence of the conservative element as well as the radical. In holding to the principles which it represents, the academy deserves praise; but for its own good as well as for the cause of art in general, it is well that the academy's too exclusive control of the exhibition facilities throughout the country should feel the force of an opposing current.

Among the works in painting and sculpture which played a prominent part in the spring academy, were the exhibits of Paul Dougherty, Gardner Symons, Cecelia Beaux, Helen Turner, Elmer Schofield, George Bellows, and Chester Beach. The winter exhibition was not noticeably different in general character from that of the spring, work worthy of special attention being shown by Ernest Lawson, Childe Hassam, Leon Kroll, Gifford Beal, Robert Spencer, Paul Manship, Janet Scudder, Phimister Proctor and Mahonri Young.

Among the regularly recurrent events of the year, the only one which is international in character is that held at the Carnegie Institute in Pittsburgh, which opened last year in April. On that occasion the flavor of internationalism from which the American artist might justly expect helpful stimulus, was somewhat mild, the management abiding to a great extent by the policy of showing the work of artists already known in this country and officially recognized abroad. In connection with the large general exhibition, a special room was devoted to the work of the French painter, Lucien Simon.

Most of the well-known American painters mentioned in connection with the other exhibitions appeared at Pittsburgh and among the foreigners were to be found artists of established reputation from France, Holland, Russia, Germany, and England.

The British art, at the Carnegie Institute in Pittsburgh, gave a fair index of what was to be expected in the exhibition of the Royal Academy in London, a number of the same artists taking part in each. The Royal Academy remains, as ever, conservative in character, true to its traditions, making a wide appeal through the large proportion of pictures which gratify the average popular taste. Official portraits of the royal family played a conspicuous, if not markedly artistic, part. The sculpture expressed in general artistic ideals more or less of the same order, in their kind, as the paintings. Altogether, it was a normal Royal Academy.

The New English Art Club has, for many years, stood for the less conventional element in British art, and its summer exhibition, much smaller, of course, than that of the Royal Academy, offered many pictures of interest. This exhibition was marked by a general tone of independence and individuality and the inequality of the work was in contrast with the academy's average standard. This club reflects the less commercial side of English painting and its appeal is consequently to a more limited, if more discriminating, public. The exhibition included drawings and water colors, as well as oil paintings, and notable works were shown by William Orpen, P. Wilson Steer, Lucien Pissarro, Mark Fisher, William Rothenstein, Augustus John, and others.

The exhibition of the Royal Scottish Academy, which was open in Edinburgh through the greater part of the summer, gave indication of a healthy local development and of a liberal spirit. In addition to the oil paintings and the sculpture, there were water colors, black and white drawings, architectural designs, miniatures, and enamels. Excellent pictures by members of the Scottish Academy were shown in the work of Sir James Guthrie, the president, W. O. Hutchison, James Paterson, and John Lavery, and a particularly individual note was struck by Samuel John Peploe. A number of foreign artists of note contributed, among them, Gaston LaTouche, whose death occurred this year, Albert Besnard, Emile Blanche, Edgar Degas, August Rodin, and Jean Louis Forain.

In Paris, during the spring and early summer, the two salons were drawing, as usual, immense crowds of visitors. Formerly a distinct difference in character was to be found between the salon of the Société des Artistes Français (or the old salon) and that of the Société Nationale des Beaux Arts. The latter association, when it was first formed, represented the revolutionary, or at least the more venturesome tendencies in French painting, while the older society stood for the conservative in thought and policy. But the two have become more and more alike of late years and the exhibitions held last summer simultaneously in the Grand Palais des Champs Elysées, offered an enormous amount of work, in an atmosphere of frankly debased commercialism that is not to be found, to such a degree, in any other of the great annual art events of the year.

Much good work in painting and sculpture was shown in the two salons, but it required a determined effort to find it amongst the great mass of mediocre salon "machines." As usual, a great many foreigners were represented; the American contingent making, on the whole, a creditable impression.

In addition to the thousands of works shown in the two salons, thousands more appeared at the Salon des Indépendents, where, as usual, the radicals were given full opportunities to come before the public, and the "Salon des Humoristes" showed what was being done in this direction in the graphic arts.

The small dealers' galleries in Paris gave many indications of the active artistic influences of the day in pictures by D'Espagnat, and Roussel, and in sculpture by Bernard, Bourdelle, and Maillol, all artists not yet taken up by our own dealers.

In connection with the exposition at Ghent, there was a large international exhibition of European painting, and in Berlin, broadly speaking, the Grosse Berliner Austellung and the Secession stood respectively for the traditional and the individual conceptions of art.

Such have been the principal large periodical exhibitions of the year; and it is of particular interest to Americans to form some ideas of the activities of our great permanent museums. The Metropolitan Museum in New York has added enormously to its resources through gifts, bequests, loans, and purchases.

The Altmann (q.v.) collection of old masters is the most important bequest, containing thirteen magnificent Rembrandts, and superb examples of the art of Velasquez, Hals, Holbein, Vermeer, and Van Dyck, as well as a rarely beautiful Mantegna, works by Memlinc and other primitives, and portraits of "Titian" and "Giorgione." The bequest of the whole collection of pictures, as well as the very valuable and beautiful porcelains and other objects of art, is a benefit to the museum and to the public which can hardly be overestimated.

The loan of the Morgan (q.v.) collection is a further enrichment of great value. This consists of paintings, bronzes, porcelains, tapestries, enamels, and rare works of art of other classes.

The scope of the museum has been further extended by the gift of the Riggs collection of armor, said to be the largest and richest private collection of armor ever assembled, by the Cochran collection of Persian manuscripts, as well as many other gifts too numerous to name in detail.

Among the important paintings which have been acquired by purchase, may be mentioned the fine Whistler portrait of Theodore Duret, a landscape by Cézanne, portraits by Tintoretto and Moroni and a triptych by Isenbrandt.

The Boston museum has acquired during the past year, six Gothic sculptures, and paintings by Claude Lorain, Fabritius Gainsborough, Turner, and Morland. And among the exhibitions held at the museum were the Denman Ross collection of oriental art, paintings and drawings by Besnard, the Scandanavian exhibition of pictures previously shown in New York, and a group of Italian primitives from the Fogg Art Museum.

The Chicago Art Institute has proved itself to be much alive by offering in addition to its usual annual showing of American paintings, a series of "one-man" exhibitions by contemporary artists, several exhibitions which went on from New York (including the international exhibition, greatly cut down in size, from the armory, the Scandinavian work and the German Graphic art), and a group of contemporary Spanish painting. A recent event in Chicago was the dedication of the Ferguson Fountain of the Great Lakes designed by Lorado Taft.

The Albright gallery in Buffalo has been the scene of much activity, holding not only its regular American exhibition, but a series of special exhibitions of interest, among them being the work of Constantin Meunier, Albert Besnard, Lucien Simon, and Walter Gay.

A new museum has been opened at Rochester in the Memorial Art Gallery, erected by Mrs. James S. Watson, in memory of her son, James G. Averell, and presented to the University of Rochester in trust for the people of that city.

It is impossible to give a comprehensive account of all the small exhibitions held in dealers' galleries in New York and elsewhere. It is enough to say that these not only cover a wide field of contemporary activity in art, both American and foreign, but give many opportunities, by showing loan collections, to see pictures of the old and modern masters which are not ordinarily to be seen outside the seclusion of the private collection. For example, there has been a notable loan exhibition of pictures by Manet; groups of the eighteenth century English portraits have been shown, and the work of the Dutchmen of the seventeenth century.

PALAITE. See MINERALOGY.

PALESTINE, ARCHÆOLOGY OF. See ARCHÆOLOGY.

PALLADIUM. See PLATINUM.

PALMER, THOMAS WITHERELL. A former United States senator from Michigan, died June 1, 1913. He was born in Detroit, Mich., in 1830; studied at the University of Michigan in the class of 1849, but did not receive his degree of A. B. until 1876; interested himself in politics, and in 1873 was appointed a member of the Michigan board of estimates; and in 1883 received the nomination to the United States Senate to succeed Thomas W. Ferry. In this campaign he showed himself one of the most progressive fighters in the political field. After a long deadlock, he was elected, and became a most efficient representative of his State in the Senate. After his election to the Senate he purchased over 650 acres of land near Washington and built a magnificent home there, which, at the expiration of his term, he presented in large part, and under the name of Palmer Park, to the city of Washington. In 1889 he was appointed United States minister to Spain and served in this capacity until 1892, when he was made president of the World's Fair at Chicago. In 1887 he was president of the waterways convention at Sault Ste. Marie.

PANAMA. A republic between Costa Rica and Colombia. Formerly a department of Colombia, it declared its independence November 3, 1903. The capital is Panama.

AREA AND POPULATION. A boundary dispute with Costa Rica has been submitted to the arbitration of the chief justice of the United States. Pending his decision the area is stated at 87,480 square kilometers (33,776 square miles). About half of the inhabitants are mixed bloods, and the remainder consist, in about equal proportions, of white, negroes, and Indians. The population, in 1911, is reported at 386,745; the city of Panama, 37,505; Colón, 17,748; David, 15,079; Bocas del Toro, 9759. Movement of the population in 1910 and 1911 respectively: Marriages, 1299 and 774; births, 5876 and 6155; deaths, 5177 and 4957; immigrants, 28,215 and 54,906; emigrants, 14,910 and 42,656.

The number of public schools is stated at 294, with upwards of 19,000 pupils. In 1911 the National Institute (high school, college of commerce and language, and normal school) was opened in the city of Panama.

By the treaty of November 18, 1903, the United States guaranteed the independence of Panama, and the latter granted to the United States, in perpetuity and with sovereign rights and powers therein, a strip of territory (the Canal Zone) extending to a width of five miles on either side of the centre of the Panama Canal. The cities of Panama and Colón are not included in the Canal Zone. A census of the Canal Zone was taken as of February 1, 1912. The total number of persons enumerated was 71,682, of whom 8872, though employed within the zone, resided in the cities of Panama and Colón; the population of the zone, therefore, was reported at 62,810 (which figure, in addition to the Canal Zone proper, covers the canal commission settlements at Porto Bello, Nombre de Dios, Colón Beach, etc.). Of the 62,810 persons, 19,413 were returned as white, 31,525 black, 10,323 mixed, 521 yellow (of whom, 516 Chinese and 5 Japanese), 378 Hindus, 2 Filipinos, and 648 Indians (nearly all of the Indians, the census states, might more properly have been returned as mixed). Of the population, 30,859 were British, 11,850 American, 7636 Panaman, 4305 Spanish, 2760 French (largely French West Indian), and 1521 Colombian. The number of employes of the Isthmian canal commission was returned at 33,241, and of the Panama Railroad Company, 7933; total, 41,174, of whom 32,513 resided in the Canal Zone and 8661 in the cities of Panama and Colón. The larger towns of the Canal Zone: Gatun, 8887; Empire, 7152; Cristobal, 3584; Gorgona, 3444; Paraiso, 2339; Pedro Miguel, 2278; Culebra, 2032; Ancon, 1674.

PRODUCTION, COMMERCE, ETC. Panama is a fertile country, but only a small part is under cultivation. The leading crop is bananas, and other products include sugar-cane, cacao, coffee, corn, rice, yams, sweet potatoes, and tobacco. Mining and manufacturing are little developed.

Imports (exclusive of non-dutiable supplies for the Panama Canal) and exports are shown below:

	1908	1909	1910	1911
Imps...	$7,806,812	$8,756,308	$10,056,994	$9,897,000
Exps...	1,827,050	1,502,475	1,769,330	2,863,000

The leading imports are foodstuffs and cotton goods. Principal exports in 1910 and 1911 respectively, in thousands of dollars: Bananas, 1031 and 2146; ivory nuts, 118 and 161; hides and skins, 92; gold, 120 and 82; cocoanuts, 113 and 75; rubber, 111 in 1910; mother-of-pearl, 73 in 1911. In 1911, imports from the United States amounted to $5,123,000, and exports thither, $2,575,000; United Kingdom, $2,273,000 and $125,000; Germany, $1,119,000 and $156,000.

The Panama Railway, which belongs to the United States government, extends across the isthmus from Colón to Panama, 48 miles. In the region about Bocas del Toro, light railways, chiefly for the banana industry, aggregate upwards of 150 miles. The construction of a national railway from the city of Panama to David (271 miles) has been authorized. Telegraph and post offices, about 40 and 100 respectively.

FINANCE. The monetary unit is the balboa, equivalent to the American dollar. Revenue, in 1910, $3,370,511; in 1911, $3,366,470. Expenditure in 1911, $3,359,588. The budget for the two-year fiscal period 1913 and 1914 balanced at $7,682,428. Estimated revenue was: Customs, $3,300,000; stamps, consular fees, etc., $1,481,010; ports and domains, $165,053; interest (on $6,000,000 invested in the United States), $568,400; contribution of the United States on acount of the Canal Zone, $500,000; miscellaneous, $1,677,965. Estimated departmental disbursements: Interior and justice, $2,407,681; fomento, $2,257,204; public instruction, $1,406,988; finance, $1,176,862; foreign affairs, $343,870.

GOVERNMENT. The legislative power is vested in the unicameral National Assembly (32 members elected for four years by direct vote). The president also is elected by direct vote for four years and is not eligible to succeed himself. He is assisted by a cabinet of five members. Three *designados* are elected by the assembly to succeed, in order, to the presidency in case of vacancy. The president in 1913, for the term ending October 1, 1916, was Belisario Porras. *Designados:* Rodolfo Chiari, first; Ramón Valdés, second; Artistides Arjona, third. Each of the seven provinces is administered by a governor appointed by the president.

HISTORY. The tariff system was amended so as to place higher duties on some commodities; the establishment of bonded warehouses was authorized for the storage of dutiable merchandise. As the result of a law obliging Chinese residents to pay a registration fee, the government had considerable trouble with the Chinese element of the population. The Chinese consul-general Owang King, who was reported to have advised his countrymen to refuse obedience to the law, had his *exequatur* returned to him in September by the government of Panama. In November over a thousand Chinese retail merchants and laundrymen closed their stores as a protest against registration,—Panama received a gift of $10,000 from King Alphonso of Spain as a contribution towards the erection of a statue of Balboa, discoverer of the Pacific ocean.—The government of Panama formally invited all American States, including Canada, to participate in the National Exposition of Panama, November 3, 1914 to April, 1915.

PANAMA-CALIFORNIA EXPOSITION. See EXPOSITIONS.

PANAMA CANAL. The end of 1913 saw the practical completion of the canal as far as the works of excavation and the construction of locks were concerned. There only remain minor details to be completed which, although requiring considerable time, are relatively unimportant compared with the magnitude of the work already done.

There were several important changes in the organization of the canal commission during the year. S. B. Williamson, division engineer of the Pacific division, had retired on December 11, 1912, and as he considered that the work of this division had advanced to such a state that the commission was not warranted in continuing it, this action necessitated a reorganization of the work on the Pacific side of the canal. That part of it relating to terminals, which considering the previous fiscal year had been assigned to the Pacific division, was transferred to the second division, which had charge of preparing the designs for the shops, dry docks, and coaling stations.

Lieut.-Col. D. D. Gaillard (q.v.), who had charge of the division in which was included the Culebra Cut, died November 28, 1913. R. L. Metcalf was appointed head of the department of civil administration in August, and several other changes were made in the civil administration of the zone. Paragraphs on the construction during the fiscal year follow:

FIRST DIVISION. This division, under Col. H. F. Hodges, continued during the year in charge of the locks, dams, regulating works, and accessories; the design and construction of aids to navigation; the inspection of the manufacture and erection of the lock gates, operating machinery, gates and valves, etc., and placing of such concrete in the locks as was omitted until the installation of the machinery. The designing work for the locks was completed, and the force in charge of the designs was disbanded on June 1, 1913.

During the year, 14 gates and one caisson for the spillway at Miraflores were completed. The construction and erection of the lock gates was continued during the year. All shop drawings were completed as was the manufacture of all material for the gates, aggregating 57,500 tons. The final shipment of these was made in April. At the beginning of the fiscal year, work was in progress on half the total number of locks on the canal, but none had been entirely completed. On June 30, 1913, over 97 per cent. of all material was assembled in the gates. All the guard gates were complete except those at the lower end of Miraflores locks, and the guard gates at both ends of Gatun locks had been permanently closed at the end of the fiscal year.

During the year the scheme for the control of the various locks was completed. This contemplates the control in the central station of every piece of machinery in the lock walls. This central station is situated on the centre wall of the upper locks, where an uninterrupted view of the entire locks or flight of locks may be had. In this house is located a control switchboard connected with every local control panel and indicating mechanism.

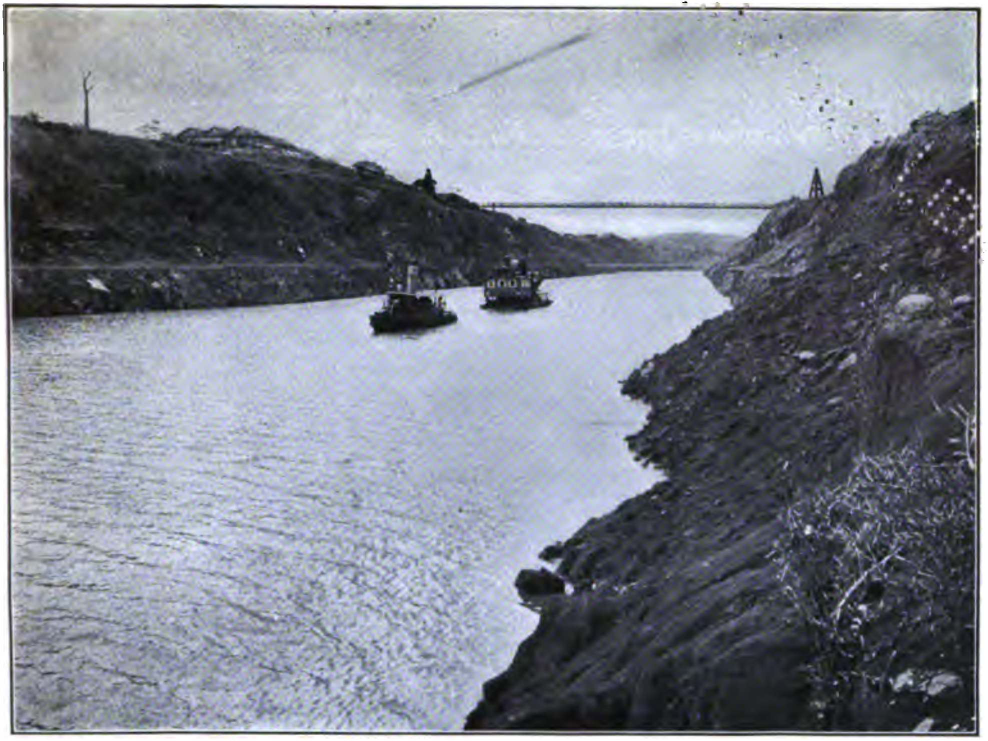
The plans for illuminating the locks were practically completed during 1913. A hollow concrete pole with concrete bracket arms and reflectors supports the lamp for exterior illumination of the locks and grounds. These poles are approximately 100 feet apart, and the lamps 30 feet above the coping level. The lighting units are 110-volt, 500-watt Mazda lamps. During the year the shop drawings for the emergency dams were completed and approved. The assembling of the east dam at Gatun was completed on March 1, 1913. The erection of the east and west dam was practically completed on March 1, 1913. On May 20, the contractor began the final tests of the dam on the east side, the total time for closing on the first test being one hour, one minute, and thirty seconds. In later tests, the passage was closed in forty-two minutes and seventeen seconds.

Twelve range towers were completed in the Gatun Lake section. These towers are of reinforced concrete with heights from base to focal plane varying from 28 feet 10 inches to 87 feet and 10 inches. Three skeleton tower beacons marking the edges of the channel between Balboa and Miraflores, were also completed.

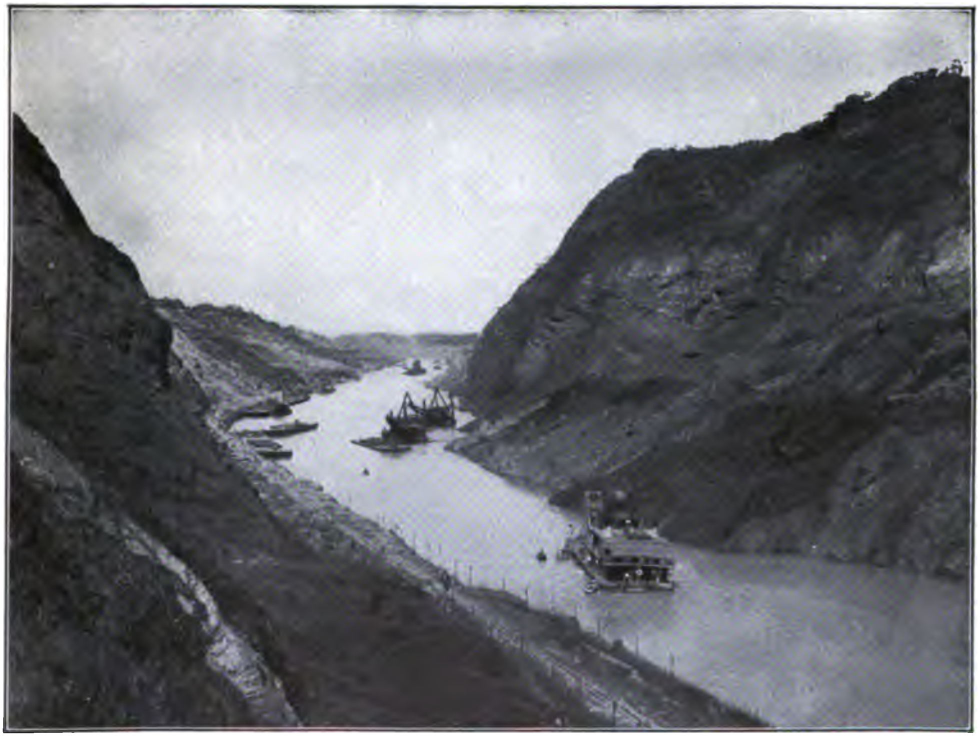
ATLANTIC DIVISION. This division embraces the construction of the locks and dams at Gatun, the breakwater at Limon Bay, and municipal improvements in Colon, and the various settlements embraced within the limits of the division. It is in charge of Lieut.-Col. William L. Sibert.

It was estimated in 1912 that the concrete work of the Gatun locks would be completed by July 1, 1913. By shortening the north approach piers 200 feet, all the concrete, except miscellaneous finishing, was completed on June 14, 1913. At the close of the previous fiscal year, the Gatun Dam had been raised to an elevation of 103.35 feet for a length of 1000 feet east of the spillway, and for the balance of this portion of the dam, the dry fills had reached a general elevation of 96 feet and the hydraulic fill between them a general elevation of 85 feet. At the close of the year sufficient material had been added to raise the dam to practically its full height with 3 to 5 feet additional along the axis to allow for settlement. At the beginning of the fiscal year the spillway dam had been completed.

CENTRAL DIVISION. This division embraces



CULEBRA CUT. Looking north from east bank between Culebra and Empire. Tug towing first ladder dredge to operate in Canal. October 22, 1913.



CULEBRA CUT, CULEBRA. Looking north from west bank. Dredges excavating at Cucaracha slide and channel at that point 150 feet wide. December 15, 1913.

the excavation between Gatun Dam and Pedro Miguel locks, including diversion channels, the construction of the Naos Islands breakwater, and municipal improvements within the division limits. In this section is included the Culebra Cut. Of this, it was estimated that 5,899,200 cubic yards were the result of slides. The amount remaining at the end of the year was again increased as a result of slides, and aggregated 8,200,000 yards, which was an increase of 9,280,237 cubic yards over the estimates made in 1912. The total amount of material due to slides as removed since the beginning of the work was 22,570,000 cubic yards. No treatment has proved effective against slides, when once developed. The Cucaracha slide, of which it was predicted in 1912 that it had reached the end of its activity, was the largest part of the delay in the work of excavating in 1913. The bottom grade of the canal had been reached and the widening cuts had progressed satisfactorily until within an approximate of 60 feet of the line of the prism was reached on the east side, when on January 20, the basalt rocks broke, and there slid in the cut approximately 2,000,000 cubic yards of material extending completely across it, topping the tracks on the 67-foot level and completely stopping the passage of trains from the north. Bottom grade was subsequently reached for a sufficient width to put in drainage pipes for handling the water from the north, but the rains, saturating the loosened material, caused a flattening of the slope. This produced another movement, and the weight of the superimposed mass broke the pipes. Work was continued on the slide throughout the fiscal year, but principally for the purpose of maintaining tracks on the 67-foot level open for the passage of trains. On October 10, as will be noted below, water was turned into the cut and the process of removing the material deposited by the slide was carried on by dredges. Other slides in the cut during the year made it necessary to remove large quantities of material. The total excavation in the cut up to December 31 is shown in the table below.

Fifth Division. As noted above, the resignation of Mr. S. B. Williamson, previously in charge of the Pacific division, resulted in a reorganization of that division into the fifth and sixth divisions. The fifth division had charge of the construction of the locks, dams, spillway, excavation, and other operations. Excavation in connection with the Pedro Miguel locks was completed at the end of the fiscal year by the removal of 3044 cubic yards from the locks proper. The Miraflores locks, including excavations for foundations in the placing of concrete, were carried to completion during the year. The total amount of concrete laid in the Pacific locks up to July 1, 1913, aggregated 12,382,983 cubic yards.

Sixth Division. As it was decided in February, 1913, to flood Culebra Cut in October, 1913, by removal of the dike at Gamboa, which kept out the waters of the lake, about 350,000 cubic yards of material had to be removed from the lake section north of Gamboa and this could be done most economically by dredging. The Cucaracha slide could not be removed economically by steam shovels after the heavy rains had set in, but could be handled efficiently by suction dredges. It was decided, therefore, that subsequent to the admission of water into the cut in October, the work remaining could be handled most expeditiously and economically by the use of the dredging fleet. The sixth division was organized to get the fleet in condition to handle the work and to take charge of the dredging after the blowing up of the dike. The division was in charge of W. G. Comber, the resident engineer. On October 10, President Wilson, by the pressure of an electric button in Washington, gave the signal for blowing up the dike. For this there was employed 100 tons of dynamite, which was planted in a thousand holes in the dike. This loosened the earth, and the 30-foot head of water in Gatun Lake began at once to sweep it away. After the cut had been filled with water, there remained only one other obstacle for a continuous passage through the canal. This was the débris deposited by the Cucaracha slide. For the remainder of the year dredges were employed in removing the material occasioned by this slide.

On August 15 Lieutenant-Colonel Gaillard, in charge of the work at the Culebra Cut, was obliged to take a leave of absence, as the result of a nervous breakdown. Colonel Gaillard later died, as noted above. On September 11 the working force of the canal was reduced by about 9000 men. The first vessel passing through Gatun Lake was a government tug boat, which made the passage on September 26. Early in October there was a series of earthquakes in the canal zone, and it was feared that some portions of the canal had suffered damage. Examination, however, showed that this was not the case. On October 19 three dredges and twelve other vessels were lifted to Gatun Lake through the Gatun locks, and on October 25 a suction dredge passed through the locks at Miraflores and Pedro Miguel. Dredges cut a channel through the Cacaracha slide, the last obstruction in the Culebra Cut, on November 17. Another slide occurred on November 28. This was finally pierced on December 13, and on December 15 the obstruction was cleared away sufficiently to permit the passage of vessels.

On December 27 the gates and operating machinery at the spillway of the Gatun Dam were tested. The testing began at ten o'clock in the morning, and was continued in the afternoon. All the 14 gates were raised and lowered smoothly, and the tests were regarded as satisfactory. Prior to the operating tests, forces of the hydrographic office had made measurements of the leakage around the edges of the closed gates. Operations were carried on continuously for 48 hours, the flow being recorded every hour. The measurements showed a total leakage from all the gates of from .08 cubic foot per second, to a maximum of 2.4 cubic feet per second. The variation in leakage is in direct proportion to the temperature, the minimum occurring in the cool of the night, and the maximum in the hottest time of day. This is because the heat of the sun expands the top part of the gate, causing a slight buckling of the centre. When the gate was opened on December 27 to lower the surface, the elevation of the lake was 84.76 feet above the sea level.

Government of the Canal Zone. The question of the form of government for the Isthmian Canal Zone, following the completion of the canal, was much discussed during the year. Mr. Metcalfe, head of the civil government, recommended a government by a commission of three. Colonel Goethals on the other hand favored a government under one head. In December, Mr. Garrison, Secretary of War, declared that there would be no commission government, and that a military officer would be appointed to govern the zone. It was practically settled at the end of the year that Colonel Goethals would be offered the position of governor of the zone, but the actual form of government had not been decided.

The Opening of the Canal. The slides in the Culebra Cut above referred to prevented the completion of the canal at a date as early as had been prophesied in 1912, but for this it is believed that the canal would have been completed shortly after January 1, 1914. It had been planned that Captain Amundsen, commander of the *Fram*, a vessel famous in Arctic and Antarctic explorations, should be the first to pass through the completed canal, but Captain Amundsen was not able to delay the departure of the *Fram* to the date necessary to bring this about. It has been practically decided that the opening of the canal will be celebrated by a great international display of war ships. The governments of Germany, England, Russia, and Austria have promised to send battleships.

Fortifications. By an act approved on August 24, 1912, an appropriation of $1,000,000 was made for the gun and mortar batteries for the defense of the canal against naval attack, making the total appropriation $3,000,000, which was considered sufficient for the completion of this portion of the work. In addition, $200,000 was appropriated for land defenses. Work was continued during the year on the gun and mortar batteries. The detailed surveys necessary for the location of land defenses were well advanced to completion, and work was begun on July 1, 1913, on the construction of redoubts in accordance with plans prepared by a board appointed for the purpose and approved by the Secretary of War. Early in December the first division of the Atlantic fleet submarine flotilla sailed to the Atlantic terminal, and mortars were sent to the forts later in the month.

Canal Toll Rates. In 1912 Congress passed laws providing for the operation of the canal and regulating the passage of vessels through it. These measures included a provision that American coastwise ships should be exempted from the payment of tolls. This exemption was protested by the British government on the ground that it violated treaties between the United States and Great Britain. There was strong opposition to the inclusion of this provision in the Senate, but the measure finally passed and was signed by President Taft. The Sixty-third Congress took no definite action in regard to modifying this law, although in a general way President Wilson gave it to be understood that he favored the repeal of the clause objected to by Great Britain.

On November 13, 1912, President Taft issued a proclamation announcing the rates to be paid by ships passing through the canal. This rate is $1.20 per net ton for vessels carrying cargo or passengers, or both, each 100 cubic yard of earning capacity to be counted as a ton; 40 per cent. less, or 72 cents per ton, for vessels in ballast without passengers; 50 cents for each displacement ton of warships; $1.20 per net ton for army or navy transports, colliers, hospital ships, and supply ships. There is no *per capita* charge for passengers carried on vessels. The rates declared by President Taft were practically the same as those which went into effect on the Suez Canal on January 1, 1913. On November 21, 1913, President Wilson issued a proclamation establishing the rules for the measurement of vessels passing through the canal.

Canal Terminals. An act of 1902, authorizing the construction of the canal directed the president to "also construct such safe and commodious harbors at the termini of said canal as shall be necessary for the safe and convenient use thereof." Early in the progress of the work it was evident that the terminal facilities required by the Panama Railroad Company would not be adequate for the probable needs of shipping that would use the canal, and in view of the fact that the saving on the estimates would probably enable the construction of such facilities as a part of the canal work, this was advocated in 1910.

Congress on August 24, 1912, approved an act authorizing the President to establish, maintain, and operate through the Panama Railroad or otherwise, dry docks and other terminal facilities for the purpose of providing coal and other materials for vessels of the government of the United States and for supplying these at reasonable price to passing vessels. Active operations for the construction of these were begun in the fall of 1912. The terminal facilities will not be completed by the time the canal is ready for the passage of vessels.

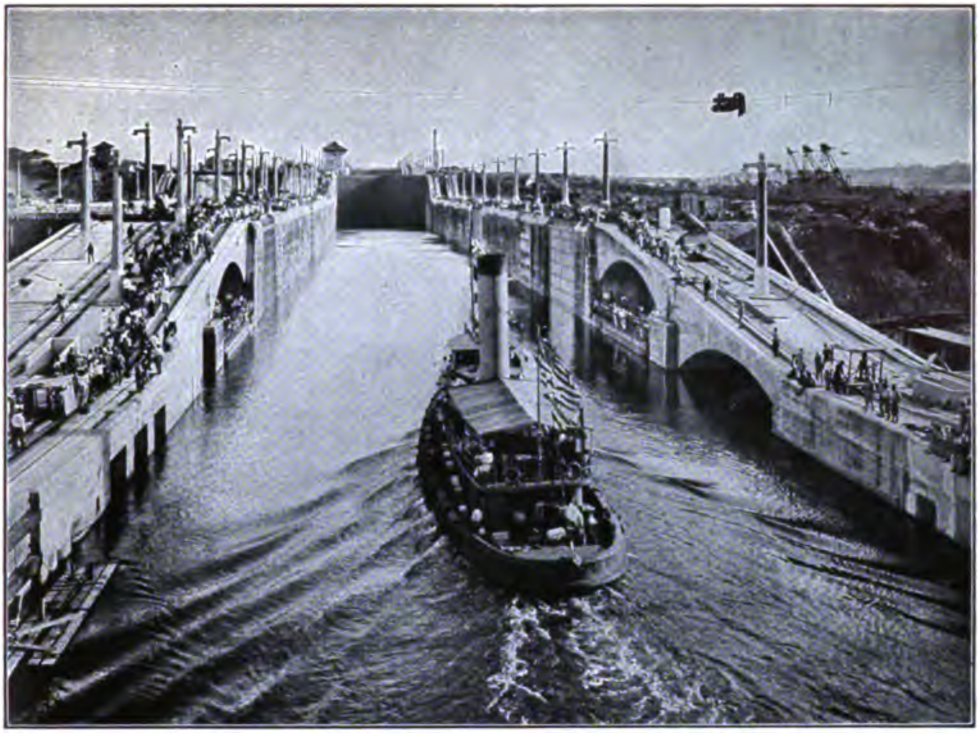
The Pacific terminals consist of a main dry dock capable of docking any vessel that can utilize the locks, a smaller dry dock for the use of smaller craft, a plant for supplying coal and fuel oil to vessels, the necessary wharves and piers for commercial purposes, and the permanent shops for use in connection with dry docks.

The Atlantic terminals will consist of wharves and piers at Cristobal, including the Cristobal mole, all of which are being constructed by the Panama Railroad at its own expense; and of the main plant for supplying coal and fuel oil to vessels. The cost of the coaling plant will be divided between the commission and the Panama Railroad Company.

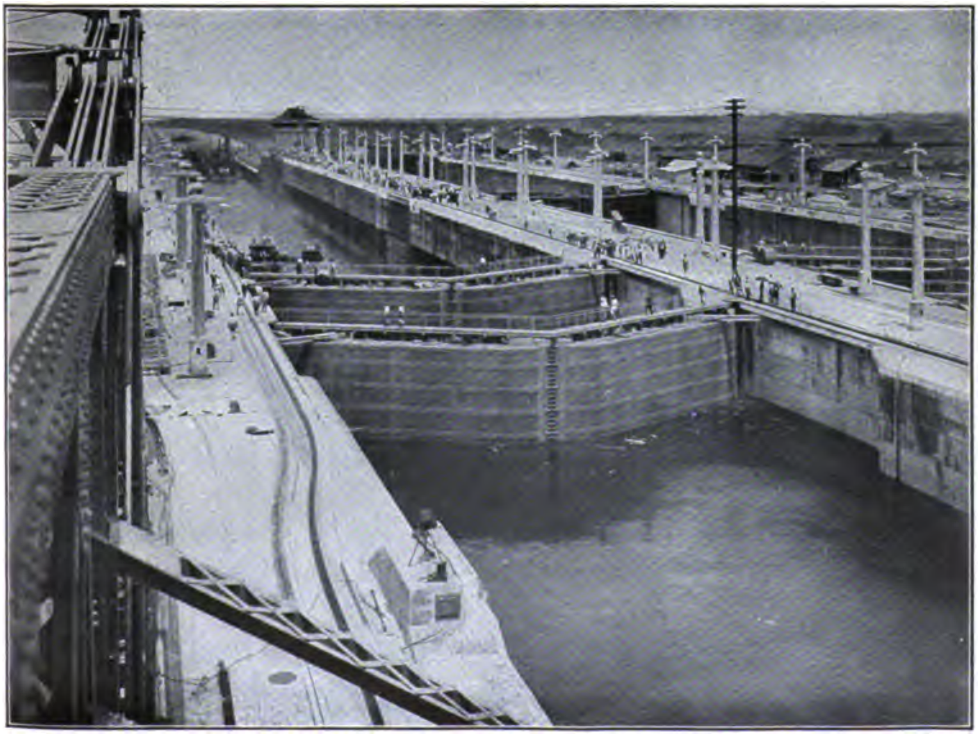
The larger dry dock at the Pacific terminal will be able to dock a vessel 1000 feet long, and will have an entrance width of 110 feet. This dock will rest on rock and for a considerable portion of its depth will be in solid rock. The smaller dry dock will have a sufficient length to dock a vessel 350 feet long, a width at entrance of 71 feet. This dock will be founded on a rock and the greater part of its walls will be of gravity section.

The wharves and docks contemplated will consist of a quay wall 1238 feet long, between the head of Slip No. 1 and the northeast end of the new Panama Railroad concrete dock. and one pier 1000 feet long by 201 feet wide. Including the length of the wharf constructed for the Panama Railroad Company, the total water frontage under construction will be about 4650 feet long.

The coaling station on the Pacific side will be adjacent to the site of the dry dock and will be capable of handling and storing 100,000 tons of coal with a possible increase of 50 per cent.



OPERATION OF GATUN LOCKS. First boat through. Tugboat "Gatun" entering lower lock, west chamber. Looking south from forebay. September 26, 1913.



OPERATION OF GATUN LOCKS. Dredging fleet entering upper lock, west chamber. Looking north. Water 45 feet above sea level. October 9, 1913.

PANAMA CANAL

The permanent repair shops will be erected near the dry docks, and will consist of 16 buildings including tool shops, a forge shop, a steel storage shed, general storehouse, foundry, and other buildings. The work of preparing the foundation for the construction of these buildings was carried on during 1913, and considerable progress was made in the construction of some of them during the year.

Labor. The force of laborers on the canal increased steadily during the first nine months of the fiscal year, until on March 26, 1913, the number reached the highest point in the history of the canal work. On that date the effective working force was 44,733, of which 39,089 were on the pay rolls of the commission and the Panama Railroad, and 5644 on the pay rolls of the contractors handling the work on the lock gates, emergency dams, and other contracts, in connection with the work. The average number of Americans employed on the rolls of the commission during the year was 4340, and on the rolls of the Panama Railway 870, a total of 5110. On June 30, 1913, there were 23,184 men, women and children occupying commission quarters. The demolition of the old settlements of Balboa and Gorgona, as a result of the completion of the work on the canal, made it necessary to establish quarters for many persons in other places. The force of laborers on the canal was reduced by 9000 in September. Other reductions were made during the year.

Cost of the Canal. The total appropriations for the Panama Canal to June 30, 1913, amounted to $328,369,830. For the fiscal year 1913, additional appropriations amounting to $16,265,393 were made. Of the total amount appropriated, $5,806,950 was for fortifications and about $6,000,000 was for other purposes not connected with the canal construction, leaving the net amount available for expenses of the canal proper $316,684,630. The total expenditures to June 30, 1913, amounted to $298,985,812 divided as follows: Department of Sanitation $16,250,164; Atlantic Division $53,504,462; Central Division $83,942,519; Pacific Division $47,355,130; general items including construction of buildings, subsistance, payments to the Republic of Panama, sanitary work in Colon and Panama, etc., $87,866,903.

The following table shows the canal excavation and the amount remaining to be excavated on December 31, 1913. On that date, it will be noted that there remained in the Culebra Cut 6,185,357 cubic yards, which was more than the amount to be excavated in December 31, 1912, which was 5,351,419 cubic yards. This is the result of the slides in the Cut mentioned above.

By French companies		78,146,960
French excavations useful to present canal		29,908,000
By Americans:		
Dry excavation	128,747,986	
Dredges	86,710,292	
Total		215,458,272
May 4 to Dec. 31, 1904	243,472	
Jan. 1 to Dec. 31, 1905	1,799,227	
Jan. 1 to Dec. 31, 1906	4,948,497	
Jan. 1 to Dec. 31, 1907	15,765,290	
Jan. 1 to Dec. 31, 1908	37,116,735	
Jan. 1 to Dec. 31, 1909	35,096,166	
Jan. 1 to Dec. 31, 1910	31,437,677	
Jan. 1 to Dec. 31, 1911	31,603,899	
Jan. 1 to Dec. 31, 1912	30,269,849	
Jan. 1, 1913, to Jan. 1, 1914	27,177,960	

Totals by Sections and Amounts to Be Excavated

Sections	Amount excavated		Remaining to be excavated	
Atlantic:				
Dry	8,854,351	48,878,262	649	4,288,738
Wet	40,023,911		4,288,089	
Central:				
Culebra Cut	98,734,571	111,511,643	6,277,429	6,185,357
All other points	12,777,072		*92,072	
Pacific:				
Dry	10,372,087	55,068,367	415,913	6,420,633
Wet	44,696,280		6,004,720	
Grand total	....	215,458,272	....	16,894,728

* Estimate exceeded by this amount.

PANAMA TOLLS. See Arbitration, International, *passim;* and Panama Canal, *Canal Toll Rates.*

PAPER. The paper industry during 1913 continued to be interested in proposed tariff changes and especially in the new schedules for paper which were being prepared during the early part of the year by the committee of ways and means of the House of Representatives. News-print paper valued at 2½ cents and under was placed upon the free list, subject to no retaliatory or countervailing duty, as was also wood pulp, and the average ad valorem rate of duty on paper, which had been 18.80 per cent. was reduced to 12 per cent. Writing and fine paper were reduced over 8 per cent. Wrapping paper was continued at the old rate of 35 per cent. and rates on materials used in paper manufacture, such as bleaching powder, china clay, caustic soda, sal soda, and refined sulphur were all materially reduced, or, in the case of sulphur, removed.

The bill, as reported, passed the House and in the Senate an amendment was introduced abolishing the duty on Canadian chemical pulp and, in fact, all retaliatory duties on all papers valued at 2½ cents per pound and under. The bill was signed by the President on October 3. The question of the countervailing duty and the dispute over the favored nation treaty argument outlined in the Year Book for 1912, was concluded on May 13, when the Customs Court of Appeals decided against the government in favor of the importers and, as a result, there was involved the refund of duties paid under protest amounting to about $3,000,000. The Ohio floods had a serious effect on the paper industry, while the question of water power and its relation to the manufacture of paper was also seriously discussed in view of legislation in New York and other States. During the year there were no serious disturbances in the labor market and the work of manufacture proceeded evenly and effectively.

As regards news-print paper, the consumption was 1,594,323 tons, or about 6 per cent. more than the consumption of 1912, and there was less paper on hand December 31, 1913, than at the corresponding time in the previous year. The domestic production was 1,371,044 tons and the imports from Canada were 223,222 tons. Prices during the year were somewhat weak due to the influx of Canadian paper immediately preceding the passage of the new tariff, but towards the end of the year conditions improved. The imports of printing paper in 1913 amounted to 437,587,640 pounds, of which 385,659,092 pounds were free and

51,928,548 pounds were dutiable, as compared with 169,259,726 pounds, the total imports in 1912, of which 125,125,066 pounds were free and 44,134,660 pounds were dutiable. Canada, of course, furnished the bulk of the printing paper imported, supplying 218,793 tons in 1913, as compared with 84,630 tons in 1912, this paper being valued at 2½ cents per pound, or less. In book paper a total production of 696,861 tons was recorded for 1913, as against 693,784 tons in 1912, which was 94 per cent. of the normal capacity of the mills, while the shipments amounted to 697,459 tons, or more than the actual production. There was keen competition during the year and it was thought that there would be increased imports of foreign paper. In coated paper the production was 113,473 tons, or 9716 tons less than was produced in 1912, the mills running about 13,000 tons short of their actual capacity, while the shipments were also less than in the previous year.

In fine, or writing papers, the actual production was 181,837 tons, against 174.059 tons in 1912, while in manila and fibre papers the actual production was upward of 564,000 tons of wrapping paper, as compared with 526,000 tons in 1912, the mills reporting a production of about 89 per cent. of their total capacity. In paper boards a total production of 827,819 tons, or an increase over 1912 of 16,108 tons, was recorded, or an actual production amounting to about 86 per cent. of the normal capacity of the mills. In tissue papers a good volume of business was done and prices were maintained, while in kraft paper the production increased considerably and it was supplementing manila paper for many purposes.

In 1913 the total imports of paper and manufactures of paper were valued at $24,359,927 as compared with $18,723,877 in 1912, while the exports of paper were valued at $21,174,217, as compared with $21,166,566 in 1911. Crude paper stock to the amount of $7,724,663 was imported in 1913, as compared with $6,927,906 in 1912, and wood pulp, mechanically ground, or chemical wood pulp, imported, amounted to $16,355,517 in 1913 as compared with $14,903,218 in 1912. Pulp wood valued at $7,007,350 was imported in 1913, as compared with a value of $6,227,346 in 1912.

The vast quantity of wood consumed annually in the manufacture of paper was strikingly illustrated in estimates of consumption prepared by Dr. Klein and published in the *Papier Zeitung*. He stated that for chemical pulp alone there was required 20,000,000 cubic meters of wood, while Snellman, another authority, estimated that 13,000,000 cubic meters were required for mechanical pulp, and 5,000,000 cubic meters for cards and boards. The annual consumption in 1913, therefore, was about 38,000,000 cubic meters, or a 30 per cent. increase in the six years from 1907, or at a rate of 5 per cent. per year. The extent of the industry was further emphasized by the fact that at the time when the estimates were prepared towards the end of the year, there had been produced already over 4,000,000 tons of chemical pulp, of which about 90 per cent. was sulphite pulp, and the remainder either soda or sulphate. In this production the United States took first rank with a production of 1,500,000 tons, and was followed by Sweden, with 740,000 tons; Germany, with 700,000 tons; Norway, with 280,000 tons; Austria-Hungary, with 260,000 tons; Canada, with 210,000 tons; Finland, with 180,000 tons; and Russia, with 130,000 tons. Out of 55 per cent. of the cellulose contained in wood, 80 to 85 per cent. can be recovered by the sulphite process, while the sulphate process yields 65 to 70 per cent. and the plain soda process from 60 to 65 per cent. of the total amount of cellulose in the wood.

The demand for newspaper continued during the year and was marked by the usual contest between the manufacturers and the publishers. In 1913 imports of chemical pulp were beginning to come to the United States in substantial quantity from Sweden and new steamship lines were being established which anticipated considerable cargoes of this material. See also CHEMISTRY, INDUSTRIAL.

PAPUA, TERRITORY OF. Formerly British New Guinea. A dependency of the commonwealth of Australia, composed of part of the island of New Guinea and a number of small islands lying mostly to the southeast. Area, 90,540 square miles; white population June 30, 1912, 1064. The native population is generally assumed to be between four and five hundred thousand. The industries of Papua are not numerous, but they are becoming more diversified. Area under coconuts March 31, 1912, 15,993 acres; rubber, 4496; sisal hemp, 2757; coffee, 14; other cultures, 1447—total, 24,707 acres, divided among 192 plantations. The natives are compelled by the government to plant coconuts for food, and about 350,000 acres have now been so planted. There are many indigenous products of great economic possibilities. The timber and pearl-fishing industries are of importance. On March 31, 1912, the livestock in the territory consisted of 372 horses, 6 donkeys, 1286 head of cattle, 82 mules, 144 sheep, 585 goats, 95 swine, and 5267 fowls. The introduction of rabbits, foxes, hares, and monkeys is prohibited. Gold output, 1911-12, 17,047 ounces, valued at £60,608; 1910-11, 18,497 ounces, £68,803. Imports, 1911-12, £235,369; exports, £99,990; revenue, £51,035; expenditure, £85,636; tonnage entered and cleared, 275,803. Lieutenant-governor in 1913, John Hubert Plunkett Murray, born 1861.

PARAGUAY. An interior republic of South America, bounded by Bolivia, Brazil, and Argentina. The capital is Asunción.

AREA AND POPULATION. The Bolivian frontier has not been definitely fixed, and the estimates of Paraguay's area vary widely, in accordance with the recognition given to the claims of either country. In 1913 a territorial status quo was agreed upon by Paraguay and Bolivia, pending a treaty in settlement of the dispute or a submission of the case to a court of arbitration. At present the area quoted by the better authorities is 253,100 square kilometers (97,722 square miles), which is about equivalent to the area of Wyoming. The census of 1899 returned a population of 643,852. An estimate of 1911 is 800,000, but it is not unlikely that this figure is too large; some authorities believe that, on account of political disturbances, the number of inhabitants decreased between 1904 and 1912. The population is largely a mixture of Spanish, Guarani, and negro. The larger towns, with estimated population: Asunción, 84,000; Villa Rica, 30,000; Concepción, 25,000; Carapeguá, 15,000; Luque, 15,000. Immigration is small, amounting in 1910-11 to 418 and in 1911-12 to 605.

Public schools, as reported for 1912, numbered 484, with 995 teachers and 43,214 pupils. The state religion is Roman Catholicism.

Production and Commerce. Paraguay is a country of exceptional agricultural promise, being capable of producing successfully almost all of the important sub-tropical crops. Unfortunately large blocks of land have been alienated to foreign capitalists and syndicates, and economic progress has been retarded by internal conflicts. Comparative tranquillity in 1913 noticeably bettered agricultural and business conditions. The leading farm products include yerba maté, tobacco, corn, beans, alfalfa, manioc, and various fruits, especially oranges. The quantity of domestic tobacco marketed in 1910 was 12,396,031 pounds; in 1911, 14,187,395 pounds. Paraguayan tobacco has recently been improved by the introduction of seed from Cuba. Sugar-cane and cotton are crops of increasing importance.

Imports and exports have been valued as follows, in thousands of gold pesos (worth 96.5 cents):

	1908	1909	1910	1911	1912
Imports	4,073	3,788	6,248	6,479	5,283
Exports	3,732	5,137	4,785	4,829	4,211

The leading imports are cotton goods and foodstuffs, followed by hardware and alcoholic beverages. Principal exports in 1910 and 1911, in thousands of pesos: Hides and skins, 1178 and 1010; timber, 1038 and 1055; tobacco, 572 and 714; quebracho extract, 782 and 590; yerba maté, 522 and 568. Imports and exports by countries in 1911, in thousands of pesos: United Kingdom, 1850 and 1; Germany, 1818 and 1020; Argentina, 765 and 2722; Italy, 352 and 25; Spain, 414 and 158; France, 432 and 75; United States, 390 and 2; Uruguay, 51 and 729; other, 396 and 97; total, 6479 and 4829.

Communications. The length of railway open to traffic in 1911 was 373 kilometers (232 miles). Asunción is connected by rail with Encarnación, which is on the Paraná River opposite the Argentine town Posadas. A ferry between these towns was opened in the summer of 1913, thus insuring through service between Buenos Aires and Asunción. During 1913 a branch of the Paraguay Central Railway (the Asunción-Encarnación line) was under construction; this branch is projected to extend from Borja (a short distance south of Villa Rica) eastward to a point on the Paraná opposite Iguassu (Brazil). There are about 2500 miles of telegraph line and 385 post offices.

Finance. For 1911 the estimated revenue was 2,738,000 pesos gold and 9,190,500 paper; estimated expenditures, 999.412 pesos gold and 32,687,228 paper. (The gold peso is valued at 96.5 cents, and the paper peso at about 7 cents.) The budget for 1913 showed estimated revenue of 3,248,000 pesos gold and 21,688,200 paper, and estimated expenditure. 1,862,582 pesos gold and 48,301,645 paper. Import and export duties were estimated at 2,521,200 and 610,800 pesos respectively. Public debt as reported for March 31, 1912: Foreign, 4,105,085 pesos gold; internal, 1,812,270 pesos gold and 76,597,425 pesos paper (including outstanding paper money); floating, 998,320 gold and 2,261,550 paper.

Army. The authorized military expenditure for 1913 was £157,603, or nearly 15 per cent. of the total expenditure of the republic, an increase of 25 per cent. over 1911. There was increased pay of all ranks, private soldiers in many cases receiving as much as 50 per cent. increase. The army consisted of 145 officers and 2016 other ranks and was divided into five military zones.

Government. The constitution (of 1870) provides for the election of a president and vice-president by indirect vote for four years. Five members constitute the cabinet. The Congress consists of the Senate and the Chamber of Deputies, members of both houses being elected directly. The president in 1913 was Eduardo Schaerer, elected for four years from August 15, 1912; vice-president, Dr. Pedro Bobadilla. The ministry appointed in 1912 was altered by the nomination of Col. Patricio A. Escobar to succeed Manuel Gondra as minister of war; Severiano Zubizarretta, minister of finance, was appointed director-general of posts and telegraphs.

History. On April 1 at the opening session of the Congress, President Schaerer delivered the presidential message, reviewing with gratification the recent achievements of his administration, among which he counted the present amicable foreign relations, the mounted police service, and the prosperity of the postal and telegraph departments. Among the measures presented for the approval of Congress was a homestead law which would allow the government to allot a small holding of 15 hectares of land to each applicant who would agree to cultivate the land and build a house on it. The Paraguayan consul at Hamburg was endeavoring to obtain the services of German army officers to drill the Paraguayan army. The budget for the fiscal year 1913 balanced at 1,862,581 pesos gold and 21,688,200 pesos paper. See Uruguay.

PARALYSIS, Infantile Spinal. See Poliomyelitis.

PARCEL POST. The system of parcel post put into operation on January 1, 1913, met with almost instantaneous success. Considerable objection being made to the requirement of special stamps an order was issued abolishing it. After a half-year's experience certain improvements were made. It was provided that packages might be sent C. O. D. by the payment of ten cents additional, which would cover not only cost of collection but also insurance. Under the authority of the postal express law of 1912, giving the postmaster-general with the Interstate Commerce Commission authority to alter rates, classifications, and zones by administrative order, rates were reduced on August 15.

Plans of Postmaster-General Burleson for a further extension of the parcel post were approved by the Interstate Commerce Commission on December 6. The weight limits of parcels in the first and second zones were increased from twenty to fifty pounds; the weight limit in zones beyond the second was raised from eleven to twenty pounds; books were admitted; and rates in the third, fourth, fifth, and sixth zones were reduced. The rate reductions on the first pound were respectively from 6c to 5c, 7c to 6c, 8c to 7c, and 9c to 8c in the third, fourth, fifth, and sixth zones; and for each additional pound from 5c to 2c in the third zone, from 7c to 4c in the fourth; from 7c to 6c in the fifth; and from 9c to 8c in the sixth. These reductions became effective January 1, 1914. As to books, the postal rate of one cent for each two ounces or fraction up to eight ounces was retained; but to books weighing more than eight ounces the new zone parcel post rates apply. This ruling will be effective March 1, 1914. It was made as a result of urgent request by circulating libraries, schools, colleges, and publishers. These further reductions were made in consequence of records showing that the previous reductions in August had been followed by an increase of one-sixth in the number of parcels and of about one-third in the average postage per parcel. These extensions involved additional burdens for the railroads which were already complaining of inadequate payment; the postmaster-general therefore promised to present data upon which Congress could determine a fair and more adequate compensation. A congressional committee was investigating this question at the close of the year.

The express companies objected to these reductions, but their objections received little public support. The position of the express companies had been greatly altered by an order of the Interstate Commerce Commission, effective October 15. This introduced the block system of rate-making, greatly reduced rates, required uniform classifications, joint rules, and regulations of the companies, and instituted a new form of express receipts. These new rates were expected to greatly reduce express company business and dividends, and led to surmises as to the probable future of the companies.

COST OF LIVING. Much attention was given to the possible utilization of the parcel post to reduce the cost of living. An abundance of evidence was brought forward showing great disparity between the prices received by farmers for fruits, vegetables, eggs, and other foods and the prices paid by the city consumer. Proposals for the development of municipal markets vied with proposals for perfecting the rural delivery and parcel post systems as methods of bringing producer and consumer closer together and eliminating one or more middlemen.

Representative David J. Lewis, a member of the congressional joint committee on a general parcel post proposed that organizations such as the People's Institute of New York undertake to bring producers and consumers into direct relations. Any such responsible organization could, he thought, by advertising and other forms of publicity, secure lists of farmers and what they had to sell and lists of consumers and what they wished to buy. Some effort to standardize forms of shipment would be necessary. He also thought this system would be of great value to workmen who might give up their work in the city at age fifty to sixty and engage in truck farming, using the parcel post to dispose of their products. He declared that conditions warranted an increase in the weight limit to 100 pounds, a new zone system with 100 miles to each zone, and such a reduction of rates as would make the cost only one-half cent per pound in the first 100-mile zone, one cent a pound in the second, and one and one-half cents in the third.

PARESIS, GENERAL, OF THE INSANE. See INSANITY.

PARSONS EBEN BURT. An American clergyman and educator, died January 24, 1913. He was born in Pittsfield, Mass., in 1835, and graduated from Williams College in 1859. From that year until 1862 he was principal of the high school at Greenfield, Mass. After studying theology at Union and Auburn Theological Seminaries, he was pastor from 1868-88 of the Presbyterian Church at Baldwinsville, N. Y. In the latter year he was elected secretary of the faculty of Williams College, and served in this capacity until 1909. He was the author of the *Obituary Record of Williams College* (5 volumes); and the *Phi Beta Kappa Handbook and General Catalogue*.

PATENTS. See UNITED STATES, section *Patents*.

PAVEMENTS. See ROADS AND PAVEMENTS.

PEABODY MUSEUM OF HARVARD UNIVERSITY. An institution for anthropological and archæological research, founded in 1866 by George Peabody. On May 28, 1913, the one hundred and sixth anniversary of the birth of Louis Agassiz, the sod was broken for the erection of the remaining portion of the great University Museum at Harvard. This, the ninth and last period of construction, will soon complete the building planned by Louis Agassiz and begun in 1859. This new section will furnish additional space for the Peabody Museum collections in American and comparative archæology and ethnology. It will also give more room for the rapidly growing library, for offices and work rooms, and for a better lecture room for the students' division of anthropology.

During 1913 archæological researches were conducted by Mr. C. C. Willoughby in the Southwest, in the Tsconitson Cañon which opens into the Chinlee Valley; in the Delaware Valley by Mr. Ernest Volk; in Tennessee by Mr. Bruce W. Merwin; in Nebraska by Mr. Frederick H. Sterns; and in Massachusetts by Mr. Samuel J. Guernsey. Prof. Roland B. Dixon spent his sabbatical year traveling in southern and southeastern Asia, where he made anthropological researches among the native tribes, studied the museum collections, visited the archæological sites, and collected valuable ethnological material for the museum collections. Dr. Charles Peabody made personal researches in France, Italy, and England, and obtained most interesting material from the prehistoric sites in these countries. The Central American expedition started in November, 1913, for Guatemala, under the direction of Dr. E. R. Merwin, who is accompanied by C. W. Bishop, fellow in Central American research for 1913-14.

In accordance with the agreement of the institutions forming the International School of Archæology in Mexico, it was Harvard's turn to furnish a director for the school. Prof. A. M. Tozzer has been appointed director for the session of 1913-14, and he and Mr. C. L. Hay, the Harvard fellow, started in November, 1913, for the City of Mexico.

Dr. William C. Farabee has resigned his offices of instructor in anthropology and assistant in somatology in the museum to accept the office of curator of archæology in the museum of the University of Pennsylvania and director of the South American expedition sent out by that university. Dr. Ernest Hooton has been appointed instructor in anthropology and associate curator of somatology in the museum to fill the vacancy caused by the regrettable resignation of Dr. Farabee. Mr. A. V. Kidder has been added to the museum force with the title of associate curator of archæology. Mr. Richard F. Carroll has been appointed assistant librarian in the museum. The titles of curator and assistant curator have been changed to director and assistant director, and the officers having title of assistant have been given the title of curator.

In the year 1913 the museum issued vol. vi. of its *Memoirs,—Maya Art,* by Dr. H. J. Spinden; and also the fifth number of its *Papers,* vol. iii., completing that volume.

PEACE. See Arbitration, International.

PEACE, International, Carnegie Endowment for. See Arbitration, International.

PEACE, Publications Regarding. See Arbitration, International.

PEACE CENTENARY, Anglo-American. See Arbitration, International; and Expositions.

PEACE COMMISSION, International. See Arbitration, International.

PEACE CONGRESSES, Societies, etc. See Arbitration, International; and Arbitration and Conciliation, Industrial.

PEACE PLAN, Wilson-Bryan. See Arbitration, International.

PEACHES. See Horticulture, *Plant Breeding.*

PEARSON AND SON, LIMITED. See Mexico, *History.*

PEAT. See Chemistry, Industrial, under *Fuel.*

PELLAGRA. A new theory of the cause of pellagra was announced by Alessandrini and Scala, who had done extensive work at the Institute of Experimental Hygiene at Rome. These investigators abandoned the idea that pellagra was of parasitic origin and have apparently shown that the cause lies in the silica which exists in colloidal solution in drinking water. All drinking water contains some silica, but this is neutralized when alkaline salts are present in the water. When the salts are present in insufficient amounts or are absent there is danger of pellagra. In their experiments sodium and calcium carbonates prevented an injurious influence from the colloidal silica, while calcium chloride aggravated it. The silica acts by casing the fixation of sodium chloride in the tissues, which in turn results in excessive amounts of free hydrochloric acid. This induces reactions which cause the symptoms of pellagra, the latter being essentially an intoxication by mineral acids. The action of mineral acids is most intense on the tissues exposed to sun and air. The practical results of this research were shown in the treatment of pellagrins by daily injections of a weak solution of trisodium citrate. Even severe and chronic cases gained weight and strength while under the treatment, and were free from digestive and other disturbances; no change was made in their habits of life, food, or occupation. Dogs suffering from pellagra also recovered apparently normal health in a short period under the same treatment. Alessandrini and Scala suggested that the addition of minute pebbles of calcium carbonate to the sources of the water in pellagra districts would restore the proper balance and put an end to the excess of colloidal silica. This measure had already been applied empirically in some districts, with excellent results, small limestone pebbles being used as a filter for the water without knowledge of the specific chemical action of calcium carbonate on the silica. Equally plausible evidence in favor of the theory of a parasitic origin was not lacking, however. Harris of New Orleans inoculated monkeys with a filtrate obtained from the tissues of an undoubted case of human pellagra and succeeded in producing all the essential symptoms of the disease both in the skin and nervous system. He believed that the disease was due to a filterable virus or microorganism capable of passing through a Berkefeld filter. It would appear, therefore, that the question was still far from solution. See Insanity, and also Year Book for 1912 for bibliography, etc.

PENANG. See Straits Settlements.

PENFIELD, Frederic Courtland. An American diplomat, born in Connecticut in 1855. He graduated from the Russell's Military School, New Haven, and then took special studies in Germany. Subsequently he was for five years on the editorial staff of the Hartford *Courant.* In 1885 he was appointed vice-consulate-general at London; from 1893 to 1897 was diplomatic agent and consulate-general to Egypt, with the rank of minister resident. He traveled extensively in Africa, India, China and Japan. He received the Cross of the Medal of Honor from France in 1904, in recognition of his prominence in discussing the merits of canal routes. He also received decorations from the sultan of Turkey, the khedive of Egypt, and the czar of Russia, for services rendered to the governments of these countries. In July, 1913, he was appointed United States ambassador to Austria-Hungary. He was author of *Present-Day Egypt* (1899); *East of Suez* (1907); and was a frequent writer of articles on economic and international subjects in American magazines.

PENNSYLVANIA. Population. The population of the State in 1910 was 7,665,111. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 8,107,942.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are for estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	1,463,000	57,057,000	$41,081,000
	1912	1,449,000	61,582,000	38,797,000
Wheat	1913	1,286,000	21,862,000	19,894,000
	1912	1,240,000	22,320,000	21,204,000
Oats	1913	1,154,000	35,774,000	16,456,000
	1912	1,099,000	36,377,000	14,915,000
Rye	1913	280,000	4,900,000	3,626,000
	1912	282,000	4,935,000	3,800,000
Potatoes	1913	265,000	23,320,000	18,656,000
	1912	265,000	28,885,000	16,464,000
Hay	1913	3,141,000	a4,146,000	61,775,000
	1912	3,173,000	4,537,000	70,777,000
Tobacco	1913	38,900	b46,680,000	3,501,000
	1912	44,200	64,090,000	5,448,000

a Tons. b Pounds.

Mineral Production. The total value of the mineral products of the State in 1912 was $445,790,022, compared with $414,426,962 in 1911.

The coal production in 1913 according to the estimates of the United States Geological Survey broke previous records. Combined production of hard and soft coal was estimated to have amounted to about $267,000,000 short tons. The total output of anthracite coal was estimated at 79,830,000 long tons, 4,500,000 tons more than that of 1912. The production of bituminous coal showed increases of 10 to 20 per cent. in various parts of the State. In the production of coal, Pennsylvania not only exceeds by far any other State in the Union, but also exceeds that of any other country in the world except Great Britain, and Germany, and is closely rivaling the latter. The total production in 1912 was 246,227,286 short tons, valued at $346,993,123. Of this 75,325,855 long tons, equivalent to 84,361,598 short tons, was anthracite. Its value was $177,622,626. The production of bituminous was 161,865,488 short tons, valued at $169,370,497. The increase in the total production over 1911 was 11,201,762 short tons. The production of anthracite coal in 1912 was less than in 1911 by 5,448,633 long tons. This was due to the suspension of operations on April 1. The value of anthracite, however, showed an increase over 1911 of $2,670,211. The production of bituminous coal increased 17,304,231 short tons over 1911. Notwithstanding the decrease in the production of anthracite in 1912, more men were employed in the anthracite mines than in 1911, whereas, in the bituminous mines, the production showed a material increase with fewer employes. The number of men employed in the anthracite mines in 1912 was 174,030, compared with 172,585 in 1911. The bituminous workers in 1912 numbered 165,144, compared with 168,199 in 1911. The average number of working days in the anthracite region decreased from 246 in 1911 to 231 in 1912, and in the bituminous mines, the average working time increased from 233 days in 1911 to 252 in 1912. The total number of men employed in the mines of the State in 1912 was 339,174, compared with 340,784 in 1911. (For account of labor troubles in the anthracite region in 1912, see Strikes.) There were 584 fatal accidents in the anthracite mines in 1910. In the bituminous mines 437 men were killed; a decrease of 92 from 1911. The chief cause of accident was falls from roof and coal, which caused the death of 242 miners.

The production of petroleum in the State in 1912 was 7,839,948 barrels, compared with 8,248,158 barrels in 1911. The production continued to show a decline. A number of new wells were drilled in 1912, several in Allegheny yielding as much as 25 barrels a day. A 100-barrel well was struck in Penn Township and another in Green County.

The production of iron ore in 1912 was 517,081 long tons, compared with 537,506 in 1911. Pennsylvania ranks first in the production of pig iron. There were made in 1912 12,552,131 long tons, compared with 9,807,073 in 1912.

A small amount of copper is produced in the State. In 1912 this amounted to 248,378 pounds of blister copper, compared with 661,621 pounds in 1911. The copper is recovered as a by-product in the treatment of pyritiferous magnetite at the Cornwall mines in Lebanon County.

Clay. Pennsylvania is the second State in the value of clay product. It is first in the production of brick and tile products, and fifth in the production of pottery. The total value of the clay products in 1912 was $21,537,221, an increase of $1,267,188 over 1911. The principal clay product is fire brick.

Transportation. The total railway mileage in the State on December 1, 1912, was 8188. Of this, 5115 was mileage of twenty companies operating in the State but having their lines also outside the State, and 3073 was the mileage of independent roads entirely within the State. The roads with their chief mileage are the following: Baltimore and Ohio, 633; Erie, 441; New York Central and Hudson River, 448; Pennsylvania, 1080; Philadelphia and Reading, 456.

Education. The total enrollment in the public schools of the State in 1913 was 1,343,055. The average daily attendance was 1,281,256. The total number of teachers, both male and female, was 37,956. The average salary for male teachers was $65.82, monthly, and for female teachers $48.69.

Finance. The report of the State treasurer for the fiscal year ending November 30, 1913, shows receipts for that period of $35,348.615, and disbursements for the same period $37,566,196. There remained in the treasury at the end of the fiscal year a balance of $7,564,269. The chief revenue is obtained from corporation taxes, and the chief expenditures for public schools, charitable institutions, etc.

Charities and Corrections. In 1913 provision was made for the construction of three new institutions, a State industrial home for women, at a cost of $250,000; a village for feeble-minded women, at a cost of $40,000; and a State institution for inebriates, for which $20,000 was appropriated to secure land. The legislature of 1913 passed a measure which largely increased the power of the board of public charities over jails and almshouses. It also provides for the manner of making reports from hospitals and homes to the board. Appropriations for penal, reformatory, and charitable institutions in 1913 was $16,855,391.

Politics and Government. There was no election for State officers in 1913, as the 1909 amendment to the constitution provides for municipal elections only in odd-numbered years, except that judges may be elected any year. The terms of Governor Tener and other State officers do not expire until January, 1915. The next State election is November 3, 1914. The legislature ratified the amendment providing for the direct election of senators on April 2. A woman suffrage amendment was agreed to by the legislature and if agreed to in the 1915 legislature it will go to the voters for approval that fall. The legislature made an appropriation to provide for the entertainment of the veterans of the Union and the Confederate armies which participated in the Battle of Gettysburg. They met on the battlefield of Gettysburg on the fiftieth anniversary of the battle. The encampment began June 29 and ended July 6. This reunion was the most notable event of its kind ever held. About 55,000 survivors of the Battle of Gettysburg attended. President Wilson was present and made an address on July 4.

In November two members of the Superior Court were elected on a non-partisan ticket. They were John J. Henderson of Crawford County, and John W. Kephart of Cambria.

In Philadelphia the officers elected in November were district attorney, city treasurer, register of wills, and receiver of taxes. The term of Mayor Blankenburg does not expire until 1915. The contest was between the Republican machine and a Fusion ticket. The object of the Fusionists was to obtain control of the minor departments of the city government, and to extend to these the reforms which Mr. Blankenburg has brought about; to control the councils and to replace political administration by business management. Mayor Blankenburg made the claim that while his departments had saved money during his administration, the councils had wasted it. Charges of corruption were made by the officials against James P. McNichol, State senator, and William S. Vare, contractor, who for years had a practical monopoly of city contracts. In the election held on November 4, the Republicans were victorious, increasing their majority of the Common Council and electing a full county ticket.

In Pittsburgh Joseph G. Armstrong defeated Stephen G. Porter for the mayoralty. Two members of the City Council were reëlected and two members were defeated for reëlection. This election was the first in which a mayor and city councilmen were elected on a non-partisan ticket. Seven candidates for mayor presented themselves for the primaries in September. The contest was between Armstrong, supported by business men and Republicans, and Porter, supported by the retiring city administration which sought to intrench its machine in power, and the Progressive Republicans. Porter had 300 more votes than Armstrong in the primaries. A wholesale purging of the voting lists which had been fraudulently padded, and a rallying of the hosts of good government who feared a restoration of the bossism of William Flinn through the election of Porter, resulted in Armstrong's election by 2500 majority. Richard H. Jackson, Republican, was elected district attorney of Allegheny County; Samuel C. Jamison, Republican, was reëlected coroner; and George W. Richards, Republican, was elected sheriff.

Legislation. The legislature met in 1913, and passed many important measures. Among them were the following: A public utilities act which does away with the railroad commission, was passed. A maximum of ten hours per day and 54 hours per week for women in certain employments was provided for. A department of labor and industries was created. and vocational training in the public schools was provided for. A measure provides for semimonthly wage payments unless otherwise stipulated in the contract. Measures were passed providing for State-wide primaries, for the direct nomination of all public officers from United States senators and governor down. Provision was made for the submission to the people of the constitutional amendment providing for woman suffrage. Electrocution was substituted for hanging as a death penalty. A number of pure food laws were passed. These include a stringent cold storage law. A State board of censors for motion-pictures was created. A mothers' pension act was enacted, as was a loan-shark act, and an act providing for the abatement of disorderly houses. See also Liquor Regulation.

State Government. Governor, John K. Tener; Lieutenant-Governor, John M. Reynolds; Secretary of the Commonwealth, Robert R. McAfee; Treasurer, R. K. Young; Auditor-General, A. W. Powell; Adjutant-General, Thomas J. Stewart; Attorney-General, John C. Bell; Superintendent of Public Instruction, N. C. Schaeffer; Insurance Commissioner, C. Johnson; Commissioner of Agriculture, N. B. Critchfield—all Republicans, except Schaeffer, Democrat.

Judiciary. Supreme Court: Chief Justice, D. Newlin Fell; Associate Justices, J. Hay Brown, William P. Potter, John Stewart, Robert Von Moschzisker, S. L. Mestrezat, and John P. Elkin—all Republicans, except S. L. Mestrezat. Prothonotary, Eastern District, James T. Mitchell; Prothonotary, Middle District, William Pearson; Prothonotary, Western District, George Pearson.

State Legislature, 1913. Democrats: Senate, 15; House 57; joint ballot 72. Republicans: Senate 34; House, 127; joint ballot, 161. Progressives: Senate, 1; House, 14; joint ballot, 15. Keystone: Senate 0; House, 9; joint ballot, 9. Republican majority: Senate, 18; House, 47; joint ballot, 65.

The names of senators and representatives to Congress will be found in the article United States, section *Congress*.

PENNSYLVANIA, University of. The total number of students enrolled in the university in the autumn of 1913 was 6332, of whom 2008 were in the college; 914 in the Towne Scientific School; 1803 in the Wharton School of Commerce; 470 in the Graduate School; 374 in the Law School; 284 in the School of Medicine; 588 in the School of Dentistry; and 118 in the School of Veterinary Medicine. The instructors in all departments numbered 560. The university is the most cosmopolitan of American colleges or universities. In the student list there were 254 names enrolled from foreign countries. There were 44 foreign countries represented. The students in the United States are from practically every State and Territory. Among the promotions and new professors for the academic year 1914 are the following: Thomas D. Cope, assistant professor; Engelhardt A. Eckhardt, assistant professor; Grover G. Huebner, assistant professor of commerce; Arthur F. E. Ungnad, Clark research professor of assyriology; James C. Ballagh, professor of political science; Harlan Updegraff, professor of educational administration. The gifts and bequests received during the year will be found in the article Gifts and Bequests. The provost of the university is Edgar F. Smith.

PENNSYLVANIA ACADEMY, Annual Exhibition of. See Painting and Sculpture.

PENNSYLVANIA STATE COLLEGE. An institution of higher learning at State College, Pa., founded in 1855. The enrollment in all departments in the autumn of 1913 was 29,037. The faculty numbered 200. There were no noteworthy changes in the faculty during the year, and no notable benefactions were received. The productive funds amount to about $567,000, and the income to about $446,000. The library contains about 52,000 bound volumes. The president is Edwin E. Sparks, LL.D.

PENOLOGY. A very considerable change is taking place in the traditional attitude of society toward criminals and the methods of their treatment with the growth of the sense of social responsibility. The criminal has come more and more to be viewed as a victim of bad social conditions rather than a vicious enemy of society. He is treated, therefore, not in a spirit of revenge but with a desire to reform and rehabilitate him. Old types of prisons are being replaced by new, as shown by the movement to abolish Sing Sing Prison in New York. The convict lease system whereby convicts have been exploited in mines and lumber camps has been abolished in all but two Southern States. The prison contract system whereby prisoners are hired to private contractors within the prison is being replaced by the State-use and other system of profitable employment by the State. During the year twenty-five governors declared that the employment of convicts on road work is the best solution of the problem of prison labor in their States; fourteen others thought prison farms to be better; three favored employment on public roads; and four favored production for State consumption. Following up the reform begun by Woodrow Wilson when governor, the State of New Jersey established a farm colony and extended the State-use system. Investigation at the State prison, Jackson, Mich., showed that nine of every ten persons had failed to complete a common school course. A system of instruction of both common and high school grade and largely vocational in character was introduced. As shown below, there has also been an adoption of probation and parole systems and the indeterminate sentence. Tennessee during the year passed an indeterminate sentence law and authorized the parole of prisoners with good records. California also provided for parole and for the payment of wages to convicts during imprisonment. See JUVENILE COURT.

PAROLE OF LIFE PRISONERS. Gradually in recent years the belief has spread that the best interests of society and the individual may be served by the extension of the principle of parole even to convicts serving life sentences. Former Attorney-General Wickersham strongly supported this idea. He stated that there were early in 1913 more than 200 life prisoners in Federal penitentiaries whose only hope of release, however exemplary their conduct, was the President's pardon. A bill to parole United States life prisoners passed Congress and was signed by President Taft in January. At that time it was brought out that life prisoners are paroled in Minnesota after they have served 35 years less "good time" allowances; in Nebraska, Ohio, and Utah after serving 25 years; in Louisiana, Virginia, and Oregon after 15 years; in Texas after 10 years; in California after 8 years; and in Kentucky after 5 years.

ARKANSAS. In 1912 former Governor Donaghey of Arkansas had made every effort to secure the abolition of the convict lease system. To this end he released 360 prisoners in December. In May a law was passed abolishing the system and instituting in its place a State farm. This law placed the penal institutions under the control of a new board of penitentiary and reform school commissioners. This board of three members, of which two must be farmers, will devote its entire time to its official duties. A farm of 8000 acres was secured. The reasons leading to the adoption of farm work were: Less competition with free labor than in manufacturing; health of prisoners; and vocational training leading to self-sufficiency upon release.

INDIANA. Since 1897 Indiana has had parole and indeterminate sentence laws applicable to all men over sixteen years and all women over seventeen years of age, unless convicted of treason on first or second degree murder. Up to September 30, 1912, the State prison, women's prison, and reformatory had granted conditional releases to 6945 persons. Of these, 4000 completed the parole period satisfactorily; 449 were discharged because the full time of their sentence had expired; 120 had died; 573 remained under supervision; and 1803 or 25.9 per cent. of the total had broken their parole. Of the 4171 paroled from the reformatory, 26 per cent. proved delinquent; of the 2580 men from the State prison, 25.5 per cent. proved delinquent; and of the 194 from the women's prison, 29.3 per cent. proved delinquent. While under supervision those paroled reported earnings aggregating $1,887,000 and expenses of $1,568,000. In addition to this surplus of $319,000, the State had saved $1,152,000 in prison expenses.

PROBATION: CHICAGO. The first annual report of the adult probation offices of Cook County showed that, in the year ending September 30, 1912, there were placed on probation 1074 persons. Of these 430 were of ages 17 to 20. Those passed from probation numbered 235, of whom 171 were reported as improved, 42 unimproved, 1 dead, and only 21 committed. Those on probation and employed earned during the month of September, $30,905. In addition 31 men were managing their own business, 16 were working, but earnings were unknown, and 43 were housewives or girls working at home. The report claimed that the net saving to society was $439,970.

National interest attached to the appointment of probation officers of the Juvenile Court of Chicago. The State Supreme Court had excluded such officers from the civil service law with the result that their appointment had fallen into the hands of politicians. This corrupt system was ousted at the 1912 elections and the appointments given to the circuit judges. The latter delegated the duty to Judge M. W. Pinckney, who asked five distinguished and interested men and women to assist him. They gave both written and oral examinations to over 750 applicants and then selected the thirty-eight best fitted by experience, knowledge, and character to fill the vacancies. The court then had 74 probation officers.

MASSACHUSETTS. The fourth annual report of the Massachusetts commission on probation stated that in 1912 there had been paroled 17,538 persons. From them probation officers had collected $136,512. Of this sum $36,248 was from men sentenced for non-support of wife or family. The total sum collected greatly exceeded the entire cost of the probation system.

Missouri. The Missouri legislature in 1911 passed a law abolishing the prison contract system on December 31, 1913. But the 1913 legislature following an investigation voted to extend the date for abolishing the system to December 31, 1915. The report of the investigating committee showed that there were in the penitentiary 2403 prisoners; that 1600 were employed under the contract system, most of them at 70 cents per day; that the earnings for the two years 1911-1912 were $710,000. The report declared that the State would require an extension of time in order to enable it to purchase at a cost of about $1,000,000, the machinery and other equipment of the industries now in the prison. The new law placed the normal contract price at 75 cents per day per prisoner; continued the State binding twine factory; and provided that a number not exceeding one-fourth of the convicts should be employed on the public roads and in the manufacture of school furniture.

New York. The sixth annual report of the probation commission of New York State for the year ending September 30, 1912, showed that the number of publicly-paid probation officers had increased from 35 in 1907 to 159; that the number of cities using the system had grown from 16 to 38; and the number of counties using it in felony cases from 11 to 39; and in town and village courts from 2 to 22. But in 13 of these 61 counties no one had been placed on probation. During the year about $300,000 had been collected from probationers under court orders for family support, restitution, and installment fines. Over 20,000 persons were under the oversight of probation officers, 14,687 of them representing new cases that year.

In New York City greater efficiency was secured in the probation service by the establishment of a central probation bureau from which each officer will receive his assignments. Formerly the officers remained in court during sessions; and some would have as many as 150 cases while others had but 20. Under the new system cases will be more evenly distributed and the officers can give their entire time to field work.

A commission on prison reform was created to formulate a complete system for the control and reformation of prisoners. Its chairman was Thomas M. Osborne. The other members were: Prof. George W. Kirchwey; Judge Charles M. Hough; Prof. Howard T. Mosher; Edward Bates; E. Stagg Whitin; Mary Garret Hay; Margaret Wilson; Hannah Blum; and Judge Riley, superintendent of prisons. In order to secure accurate impressions of prison conditions Mr. Osborne and Madeline Z. Doty and Elizabeth Watson, as investigators for the commission, spent some days in actual voluntary incarceration in the State prisons at Auburn. They pronounced conditions barbarous. Shortly thereafter Superintendent Riley announced in December changes in discipline in the women's prison that would give greater freedom. The first report of the commission made among others the following recommendations: Private bathing for new arrivals; an extra suit of underwear; permission to read papers and magazines; freer communication by letter with friends and family; a graded system of punishment; abolition of the policy of silence; better regulation of the sale of tobacco; use of matches instead of flint and steel; and provision for rainy days.

The Prison Association of New York began a widespread campaign for the abolition of Sing Sing Prison. They desired to substitute for it a prison farm. Following an investigation, the Westchester County grand jury had reported it to be a scandal to the State of New York. It found the prison to have all faults of the date of its construction, 1825. The air space is less than that required by law in lodging houses; confinement in such a cell was declared a terrible punishment. Vermin were found to swarm in the cells; the walls were damp; convicts were found in every stage of tuberculosis; there was no separation of the foul and the clean; methods of punishment were declared inhuman; and this was especially true of confinement in the "cooler," which had driven men to insanity or suicide.

In July a fire in the Sing Sing prison mat factory due to incendiarism was followed by open mutiny among the 1447 prisoners. This was quelled in a few days, partly by the removal of 125 to Auburn and partly by the good sense and courage of the new warden, J. N. Clancy.

Wisconsin. A very unique law was passed by the State legislature providing that an innocent person sentenced to prison through an error of justice should be compensated by the State. The governor and members of the State board of control were created a commission to pass on petitions for such compensation. The maximum compensation was fixed at $5000.

Convict Road. Colorado was the first State to employ convicts in the construction of public highways under the honor system. The plan spread to other western States, notably Washington and Oregon, and in 1913 was tried by Warden Allen of the Joliet, Ill., penitentiary. Forty-five prisoners were placed in a practically unguarded camp. They traveled in black suits and worked in khaki suits and cotton shirts. The prisoners, largely out of loyalty to the convicts left behind the bars and partly out of loyalty to the warden, organized their own court and detective system to prevent escape and to strengthen any one of their number who might waver. The warden declared the experiment successful. It built up the men physically and morally. Governor West of Oregon stated that gangs of fifteen to twenty-five convicts under a free foreman had been successfully employed 300 miles from the prison. See also Charities, *passim.*

PENSIONS. See United States, *Pensions.*

PENSIONS, Old-Age. See Old-Age Pensions.

PENSIONS FOR MOTHERS. In 1908 agitation was begun by social workers for the pensioning of poor widows with minor children in order that the children might have the advantages of home life and the care of their own mothers. Up to the close of 1913, seventeen States and two cities had made provision for widows' pensions; bills were pending in eight States; and New York had a commission making investigation. According to an analysis of the American Association for Labor Legislation, the States with laws in force were

California, Colorado, Idaho, Illinois, Iowa, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Jersey, Ohio, Oregon, Pennsylvania, South Dakota, Utah, and Washington; and the cities, Milwaukee and St. Louis. The laws of California, Colorado, Illinois, and Michigan apply to any parent unable to support a child; in Massachusetts, Michigan, and Utah the laws apply to mothers only; in New Jersey widows only are included; and in all other States the laws extend to dependent mothers as well as widows. Such mothers in some laws include deserted wives, and in other laws, mothers whose husbands are in prison or in insane asylums, or incapacitated for labor. In Michigan alone are divorced and unmarried mothers included. In California and Colorado, if neither parent is deemed fit, a guardian may be appointed and receive the pension.

The maximum age of a child for whom a pension may be received was placed at fourteen years in Iowa, Massachusetts, Minnesota, Missouri, and South Dakota; fifteen in Idaho, Utah, and Washington; sixteen in New Jersey and Oregon, and in Nebraska, if the child be delinquent; seventeen in Illinois if a male child, and in Michigan; eighteen in Illinois if a female child, and in Nebraska if merely neglected and dependent; legal working age, in Ohio and Pennsylvania. No limit was set in California and Colorado.

The maximum allowance for one child varied in the different laws from $2.00 a week in Iowa and $6.25 a month in California to $3.00 a week in Michigan and $15.00 a month in Ohio, South Dakota, and Washington. The amount for each additional child varied from $5.00 to $12.00 per month. Colorado, Illinois, Massachusetts, and Washington set no maximum.

The administration of the law was entrusted to juvenile courts in California, Illinois, Missouri, Ohio, and Washington; to juvenile or other county courts in Colorado and Oregon; to juvenile courts or county commissioners in Utah; to other courts in Idaho, Iowa, Michigan, Minnesota, Nebraska, New Jersey, and North Dakota; to overseers of the poor in Massachusetts; and in Pennsylvania to an unpaid board of five to seven women residents of the county to be appointed by the governor.

The Massachusetts mothers' act differed from most acts in that it created no new machinery and provided not pensions but relief. The local overseers of the poor were required by it to aid all mothers with dependent children under fourteen, if such mothers be deemed fit to bring up their children. Those aided are not to be deemed paupers because of such aid. The overseers must search out relatives and secure all possible assistance from them and from organizations and individuals. They must visit each family at least once every three months and must reconsider each case at least once a year. The State board of charity must report on the work done to the legislature. The State will reimburse the city or town giving aid to the extent of one-third of the bills approved by the State board.

PEPPER, GEORGE DANA BOARDMAN. An American theologian and educator, died January 30, 1913. He was born in Ware, Mass., in 1833; graduated from Amherst College in 1857; and from the Newton Theological Institution in 1860; and in the last-named year was ordained to the Baptist ministry to become pastor of the First Church at Waterville, Me. Here he served until 1865, when he was appointed professor of ecclesiastical history at the Indian Theological Institution. After two years in this chair, he became professor of systematic theology at the Crozer Theological Seminary. In 1882 he was chosen president of Colby University, now Colby College, and after remaining in this position until 1889 he resigned because of ill health. He remained the professor of Biblical literature at Colby College until 1900. His published writings include *Outlines of Theology;* and sermons, articles, and addresses for theological reviews and other periodicals.

PERAK. The most northerly state of the Federated Malay States (q.v.). The agricultural area was divided in 1909 as follows: 68,278 acres under rubber, 75,346 under rice, 63,225 under cocoanuts, 7000 under sugar-cane. Tin and gold are mined. Export of tin (1911), 9,188,008 Straits Settlements dollars; tin ore, 31,946,988; rubber, 10,994,087; copra, 973,811; rice, 730,983; grain, paddy, 463,714; hides, 37,115; sugar, 234,424; rattans and canes, 22,633; gutta, 15,596; ataps, 68,835; areca nuts, 81,217; etc.—total exports, 55,535,590 (44,084,758 in 1910). Total imports, 29,349,243 S. S. dollars (opium, 5,098,881; tobacco and cigars, 1,423,583; spirits, 652,025; beer and stout, 333,771; rice, 6,109,072; hardware, 1,173,304, etc.), against 21,784,361 in 1910. The main railway from Penang traverses the state. Taiping is the capital, Ipoh the trade centre. Reigning sultan in 1913, Idris Mersid-el-Aăzam Shah. The British resident is R. G. Watson.

PERIM. A dependency of Aden (q.v.).

PERRY, ALEXANDER JAMES. An American soldier, died March 26, 1913. He was born in New London, Conn., in 1828; and graduated from the United States Military Academy in 1851. In the same year he was appointed second lieutenant in the second artillery. In 1861 he was promoted to be captain and assistant quartermaster. In 1862-63 he served as lieutenant-colonel and quartermaster of volunteers, and from 1864-67 was colonel and quartermaster. After the Civil War he served as quartermaster and rose to the rank of colonel and assistant quartermaster-general. In 1892 he was retired by operation of law. He was breveted with the rank of brigadier-general retired, by the act of April 23, 1904. He was breveted major, lieutenant-colonel, and colonel for services during the Civil War and brigadier-general for services in the quartermaster's department during the war.

PERRY MEMORIAL. See EXPOSITIONS.

PERSIA. A constitutional Asiatic monarchy, hereditary in the Shiite dynasty of the Kadjars since 1794; it lies between the Caspian Sea and the Gulf of Oman. Teheran is the capital.

AREA, POPULATION, ETC. The area is estimated at 1,645,000 square kilometers (635,135 square miles), and the population at about 9,000,000, of whom about 2,500,000 are nomads. The country is for the most part an arid tableland enclosed on three sides by mountains rising in the north to over 18,000 feet. A salt desert occupies the central and eastern portions. The Karun is the only navigable river. The principal products are cereals, cotton, tobacco, opium, gums, dried fruits, and silk. The country possesses valuable mineral resources, little worked except for the oil fields in the south. The nomads graze herds of sheep and goats and bring a fine grade of wool into the market. The forests are valuable. Carpets, shawls, and silk and cotton fabrics are manufactured.

Commerce and Communications. The total imports in 1912-13 were valued at 567,576,000 krâns (cottons, 155,059,000 krâns; sugar, 127,761,000; tea, 33,052,000; cotton yarn, 9,846,000; woolens, 9,301,000; petroleum, 8,388.000). Exports, 436,333,000 (cotton, 73,963,000; fruits, 61,430,000; carpets, 48,871,000; rice, 34,772,000; opium, 22,500,000; skins, 20,902,000; silk and cocoons, 19,043,000; gums, 16,303,000; wheat, 14,213,000; wool, 11,523,000). Russia has first place with imports and exports in 1912-13, valued at 328,980,000 and 300,878,000 krâns respectively; Great Britain, 86,382,000 and 34,328,000; British India, 66,799,000 and 22,270,000; Turkey, 23,389,000 and 37,927,000; Germany, 21,388,000 and 2,928,000; France, 11,031,000 and 4,829,000; Austria-Huungary, 8,042,000 and 567,000; Belgium, 7,929,000 and 408,000; Afghanistan, 4,360,000 and 2,443,000; Italy, 2,738,000 and 8,004,000; Oman, 1,047,000 and 7,378,000; China, 789,000,000 and 3,474,000; United States, 947,000 and 6,375,000; other, 2,481,000 and 2,376,000. Vessels entered (1911-12) at Persian Gulf ports, 4969, of 1,667,914 registered tons, of which 1038, of 1,309,119 tons British; at Caspian ports, 2755, of 718,765 tons, all Russian. Merchant marine, 1 sailing vessel, of 107 tons net.

There are only eight miles of railway open, and transport is mostly by pack animals over the great caravan routes. A branch of the Transcaspian Railway, to run from Askhabad to Meshed, is under consideration. No great success had attended the opening up by the Indian government of a direct trade route along the Baluch side of the Afghan border from Quetta to Seistan.

Army. The army of Persia continued in a rather unsatisfactory condition, although attempts were being made to realize the scheme of reorganization adopted in 1905. There is naturally a large proportion of mounted men in the service and a cossack brigade commanded by Russian officers consists of four cavalry regiments, an infantry battalion, and two four-gun batteries. There are irregular tribal cavalry numbering about 20,000 and a large force of irregular infantry. There were said to be 15 batteries whose armament varied from old-type Austrian guns to modern Schneider field pieces in a semi-regular organization. The peace strength of Persia was estimated at 115,000, exclusive of the regular cavalry. It was proposed during the year to reorganize the gendarmerie.

Finance and Government. Under the Anglo-Russian convention the collection and expenditure of all revenues is under supervision by a European treasurer-general. No accurate statement of revenue can be given, as a large part is derived from taxes in kind. The burden of taxation falls heavily upon the lower classes. The expenditure regularly exceeds the receipts. The Russian loan of 1900 is for 22,500,000 rubles; of 1902, 10,000,000 rubles. British loan of 1911, £1,250,000. Floating debt, 104,870,000 krâns; annuities, 14,000,000 krâns. A further joint loan by Great Britain and Russia amounts to £500,000, £300,000 of which are to be applied to the gendarmerie.

The reigning monarch is Ahmed Shah Kajar (born 1898); regent, Abou'l Kassim Khan Nasr-el-Mulk. Heir-presumptive, Mohammed Hassan Mirza (born 1899), brother of the shah. Of actual government properly so-called there is none. The country is roamed by warring tribes who live by murder and rapine. The caravan routes are infested with brigands. The provincial governors have nominal but no actual control and no power to suppress feuds between tribal factions; the central government remains powerless to help them. Elections to the national council (Mejliss) were held (for the first time since its dissolution in December, 1911) in the autumn of 1913.

History

The Cabinet. The shooting of the British Captain Eckford in December, 1912, by lawless tribesmen gave weight to the arguments of the reactionaries, who claimed that a firm hand was needed to maintain order and who, therefore, set on foot a movement to place Saad-ed-Dowleh at the head of the government. Agitation against the ministry was still further stimulated by the fact that Bakhtiaris were able with impunity to insult Treasurer-General Mornard (a Belgian). The anti-ministerial propaganda at length resulted in the resignation of the cabinet and the formation of a new ministry in January, 1913, with Ala-es-Sultaneh as premier and with the influential Ain-ed-Dowleh in charge of the important department of the interior. From the first it was apparent that the new government was not disposed to resent foreign influence. In order to obtain financial assistance it made important concessions to Russian and British interests. In February the Persian Discount Bank (Russian) was authorized to construct a railway from Julfa to Tabriz, with a branch to Urmia and possibly to Kazvin, and to exploit mineral resources within a 40-mile zone on either side of the railway. Simultaneously it was announced that a British syndicate would construct a railway from Mohammerah, at the head of the Persian Gulf, to Khoremmabad. The announcement of these concessions was speedily followed by a decision of the British and Russian governments jointly to advance $2,000,000 to Persia, in addition to a special British advance of $500,000 for the gendarmerie at Fara. The British government further manifested its good will by withdrawing the British Indian troops hitherto maintained at Shiraz. The millennium was not at once ushered in, however. Russia remained in virtual possession of the northern provinces, with garrisons aggregating 17,500 men; in the south the British were demanding protection against turbulent tribes and brigands had captured a large rug caravan on the road from Kirman to Bender Abbas. The pretender, Salar-ed-Dowleh seemed to be the cause of continual turmoil. Nationalists were lending energetic support to Sardar Assad's propaganda in favor of a new Mejliss (Parliament). Moreover, there was open criticism of the recent concessions, and Foreign Minister Vosuk-ed-Dowleh sought to avert a cabinet crisis by resigning in May. The ministry did survive, but lost one of its most influential members when Ain-ed-Dowleh resigned the portfolio of the interior. In the collection of taxes serious obstacles were encountered, especially in the province of Azerbaijan, where Persian treasury officials were arrested and the Belgian treasury agent, failing to find favor with the Russian authorities, and thwarted in all his activities by the governor-general, Shuja-ed-Dowleh, resigned in despair.

The Gendarmerie. Brighter prospects for the future were promised by the gendarmerie. Half of the two-million-dollar loan was devoted to the organization of the gendarmerie. By the end of the year there was under the direction of 34 Swedish military officers a force of 6000 gendarmes (of which 2000 were mounted), available for the patrolling of the trade route from Enzeli (on the Caspian) through Karbin, Teheran, Ispahan, and Shiraz to Bushire on the Persian Gulf, and the route from Kirman to Bender Abbas. The work of the new police was propitiously begun by a victory in September over a band of cattle-raiding Lurs at Burujird (near Sultanabad, between Kirman and Bender Abbas). With a loss of only 3 men the body of gendarmes succeeded in capturing 33 and killing 70 of the Lurs. In November the gendarmerie registered another success in the neighborhood of Kazerun on the Shiraz-Bushire route. These successes were only to a slight extent counteracted by natural misunderstandings between the Swedish officers and the natives. An unfortunate incident occurred at Teheran in August, when an officer of the gendarmes had 2 Bakhtiaris shot; but the result was not altogether undesirable. In a street fight on August 7 the gendarmes used their Maxims and machine-guns to such advantage that the truculent Bakhtiari *sowars* were completely cowed. The Bakhtiari in Teheran had been guilty of repeated breaches of law and order, and it was therefore with a feeling of relief that the city saw over half of the 700 *sowars* sent back to the Bakhtiari country. In addition to the gendarmerie the government planned to raise a force of 1000 regulars, to be commanded by the American Colonel Merrill and to assist the governor-general of Fars in pacifying the restless tribes of the south. For the maintenance of this force Great Britain advanced $500,000 to the Persian government.

Salar-ed-Dowleh. Salar-ed-Dowleh, the ex-Shah's half-brother, was reported in January to be in command of an insurrectionary force somewhere between Meshed and Teheran. In March the government attempted to conciliate him by giving him an appointment as governor general of Ghilan. The experiment failed, however. In June he was taken in custody by a Persian cossack force, but escaped in July and fled towards the Turkish frontier. Finally he was cornered at Kermanshak, where he took refuge in the Russian consulate. Anxious to eliminate his disturbing personality from Persian politics the Persian government agreed to pay Salar-ed-Dowleh an annual pension of 10,000 tomans (about $9000) if he would take up his residence in Switzerland.

Return of the Regent. The "regent who refused to govern" at last decided, after a conference in Paris with Minister Vosukh-ed-Dowleh and Mustaufi-el-Mamelik, that his presence was needed in Persia. Soon after his return, which took place in September, ex-Minister Ain-ed-Dowleh was reconciled and consented again to assume the portfolio of the interior. Ahmed Shah Kajar was not to ascend the throne until his next birthday; meantime he was to learn the art of ruling from Regent Nasr-el-Mulk. The agitation for the election of a new Mejliss was opposed in Azerbaijan by Governor-General Shuja-ed-Dowleh; but late in December it was reported that elsewhere the order for parliamentary elections had been issued.

The Boundary Dispute. The boundary dispute has caused constant irritation in Turco-Persian relations ever since the failure of the first boundary commission of 1850 to establish a definitive frontier between Turkey and Persia in accordance with the provisions of the Treaty of Erzeroum. At the instance of Great Britain and Russia a delimination commission was nominated in 1913 and was expected to begin work in 1914. In the north and in the south Turkish encroachments impinged upon Russian and British, as well as Persian, interests. It was therefore anticipated that in these regions Persia would be favored, whereas Turkey would be compensated in the region of the Zohab oil fields.

PERU. A South American republic, on the Pacific coast, south of Ecuador and Colombia. The capital is Lima.

Area and Population. There are boundary disputes with Ecuador and Columbia, and accordingly the territorial extent of Peru cannot be definitely stated. The disputed country includes a large rubber and timber area in the region of the upper Amazon. In his message to the congress, July 28, 1913, the president stated that the Peru-Bolivia boundary survey was being satisfactorily carried on, that a protocol arranging for the delimination of the Peru-Brazil boundary was signed in the preceding April that the Peru-Colombia dispute would be settled by arbitration, and that negotiations were in progress for the settlement of the boundary dispute with Ecuador. The area of Peru given by the Lima Geographical Society is 1,769,804 square kilometers (683,335 square miles). This figure does not include the area of Tacna department, which appears to be definitely attached to Chile. The number of inhabitants, which in 1896 was estimated at 4,559,550, is not known with even approximate accuracy. It seems probable that the present number is less than the 1896 estimate. About one-half of the population is Indian, and most of the remainder mestizo. The larger towns, with estimated population, are: Lima, 150,000; Arequipa, 35,000; Callao, 34,500; Cuzco, 30,000; Ayacucho, 20,000; Iquitos, 20,000.

Education. Illiteracy is prevalent, and, although primary instruction is nominally compulsory, a large proportion of the children do not attend school. For 1911, there were reported 2152 public primary schools, with 146.400. The number of children who should have been in attendance at these schools is stated at 407,987. In 1911, there were 27 national "colleges," with 4674 students enrolled, of whom 2077 were in the preparatory and 2597 in the higher courses. There are universities at Lima, Cuzco, Arequipa, and Trujillo. The state religion is Roman Catholicism, and the public exercise of any other religious form is prohibited.

Production and Commerce. The mineral deposits of Peru have been its chief source of wealth. The principal metals mined are copper and silver; to some extent gold, lead, coal, and petroleum are exploited. Copper production in 1912 is reported at 27,400 long tons, against 26,000 in 1911. The agricultural products include sugar-cane, cotton, rice, coffee, cacao, wheat, and corn. Some coca is produced, and large quantities of rubber are gathered in the northeastern districts. The production of wool, from sheep, alpacas, and llamas, is a growing industry. Manufactures are not largely developed.

Imports and exports are reported as follows, in soles (the sol is one tenth of the Peruvian pound):

	1909	1910	1911	1912
Imports..	42,986,270	49,806,970	54,382,500	51,676,860
Exports..	64,926,700	70,740,760	74,160,280	94,385,810

The principal imports are cotton and woolen goods, machinery and metal wares, and foodstuffs. Principal exports in 1909 and 1912 respectively, in thousands of soles: Minerals and metals, 16.380 and 22,120; sugar, 11,600 and 14,070; rubber, 11,370 and 12,790; cotton, 12,460 and 11,050; petroleum, 1520 and 7550; wool, 3940 and 3850; spirits, 3790 and 3790; guano, 1550 and 1810; hides and skins, 1240 in 1912. In 1911 the United Kingdom sent imports valued at 17,201,330 soles and received exports 22.466,990 soles; United States, 12,489,520 and 20,962,960; Germany, 9,459,070 and 5,784,950; France, 2,895.430 and 3,914,390; Belgium, 3,339.820 and 1,017,800; Chile, 769,960 and 13,426,700. At the port of Callao, there entered in 1912, 562 vessels, of 1,387,919 tons (steam, 479, of 1,270,588 tons).

Communications. The length of railway in operation in September, 1912, was 2766 kilometers (1719 miles). Several extensions and new lines have been surveyed, and on some of them construction was in progress in 1912 and 1913. Telegraphs in 1912: offices 317; line, 15,000 km.; wire, 57,000 km. There is a system of wireless telegraphy, whose development continued in 1913. Post offices in 1912, 781.

Finance. Peru is a gold-standard country. The monetary unit is the libra, or pound, equivalent to the British pound sterling ($4.86656); it is divided into 10 soles. In 1910, revenue and expenditure amounted to 27,957,750 and 26,853,220 soles respectively; in 1912, 34,424,580 and 37,204,050. The 1914 budget showed an estimated revenue of 35,478,360 soles. and an estimated expenditure of 31,098,360 soles. The estimated receipts were: Customs, 15.051.120 soles; taxes, 7,304,280; monopolies, 7,407,280; posts and telegraphs, 1,667,200; miscellaneous, 4,048,480; total, 35.478,360. Estimated disbursements: Finance and commerce, 8,882,240; war and marine, 8,323,860; administration, 5.106,130; justice and instruction, 4,813.450; public works, 2.005,110; legislative, 1,079,430; foreign affairs, 888,140; total, 31,098,360. The public debt recognized by the government January 1, 1913, is reported at £4,023,006.

Army. The reorganization of the Peruvian army has been under the direction of French officers. Military service is obligatory between the ages of 20 and 50, but in actual practice the regular army is recruited by voluntary enlistment, the recruits serving two years with the colors and seven years in reserve, while the remaining time of liability is spent in the second reserve, and national guard. The peace strength of the forces is about 8000, with about 24,000 fully trained capable of serving in the first line on a war basis, while the reserves number about 100,000 and are more or less untrained. The organization consists of six battalions of infantry, eight squadrons of cavalry, six field batteries with Schneider guns, a battalion of foot artillery, and 14 mounted batteries.

Government. The Congress consists of the Senate (52 members) and the House of Representatives (116 members), all members being elected by direct vote. The president and the two vice-presidents are elected for four years by direct vote. The president is ineligible for the following term. Responsible to him are the members of his cabinet, six in number. On September 24, 1912, Agusto B. Leguia was succeeded as president by Guillermo Billinghurst, for the four-year term; first vice-president Roberto Leguia. Early in 1914, as the result of a brief revolutionary movement in Lima, President Billinghurst was deposed, imprisoned, and finally expelled from the country.

HISTORY

The Ministry. Three cabinet crises were caused by questions of financial, military, and religious policy. Sr. Elias Malpartida's cabinet was overthrown by a vote of censure in the Senate. Don Aurelio Souza then formed a ministry in which Francisco T. Varela had charge of foreign affairs; Sr. Muro, justice; Rear-admiral Carbajal, war; Don José Balta, finance; and Castro Iglesias, fomento (public works and worship). In the latter part of July the Souza cabinet went the way of its predecessor, and General Enrique became president of the council and minister of war. Francisco T. Varela was retained as minister of foreign affairs, and Col. Gonzalo Terado was appointed minister of the interior; Baldamero Maldonado, finance; Col. Pedro Portillo, fomento; Carlos Paz Soldan, justice. The third crisis occurred in October when two of the ministers resigned because of the president's refusal to call an extra session of Congress.

Congress. The regular opening of the congressional session on July 28 was attended by disorders in Lima, during the course of which a bomb was thrown at the house of Sr. Villanueva, president of the Senate, and an attack was made on the home of ex-President Leguia. Sr. Leguia was subsequently reported to be in Boston, U. S. A.; according to current rumors, he and his son had been exiled by President Billinghurst. In the last week of November a handbill purporting to have been written by ex-President Leguia at Panama was published in *La Nación.* The writer made furious attacks on President

Billinghurst and subjected the latter's foreign policy to scathing sarcasm. The president's message read before Congress on July 28 called attention to the fact that the Bolivian boundary was being surveyed, that a protocol had been signed with Brazil in April for the delimitation of the boundary, that an exchange of students with Cuba had been arranged, and that the treaty of commerce signed with Germany in August, 1912, awaited congressional ratification.—The President also recommended the authorization of a loan of $28,500,000, although the budget, as presented, showed a balance of over two million dollars. A tax-collecting company had signed a contract with the government on February 25 for the collection (in behalf of the state) of the excise tax on alcohol, sugar, matches, and the stamp, registration, chattel, sealed paper, transfer, mines, customs-paper, cornerstone, and port taxes. Three of the nine directors of the company were appointed by the government. A revision of the customs tariff had also been accomplished, permitting the free importation of mining and agricultural machinery.

An important constitutional amendment was passed by the Chamber of Deputies on October 3 by a vote of 64-4, having previously been approved by the Senate. The amendment so modified article iv. of the constitution as to permit the building of Protestant churches and mission schools. It will be recalled that hitherto the public service of any religion other than Catholic Christianity had been legally prohibited, but tolerated in practice. The marriage of non-Catholics had been legalized by the acts of 1897 and 1903. The Protestant missionaries were not content with toleration, however, and conducted an agitation of which the present measure is a result. At first some of the Catholic clergy were inclined to protest; they encountered powerful opposition, however, and accepted the amendment with good grace. Another interesting sidelight on the religious situation was afforded by the passage of a law which provided that the Bible shall be studied regularly in the first to fifth years of public school instruction.

MISCELLANEOUS. On July 11 a decree was issued to create a national school of aviation; the sum of $27,150 was appropriated for this purpose. The temperance movement received a great impetus from a decree of President Billinghurst ordaining the use of an anti-alcoholic text-book in the public schools. As an experiment in town-planning the government purchased a tract of land in the Malambo district near the capital for the construction of 40 model houses for workingmen. Dr. Guillermo Romero was appointed to revise the mining-code.

On November 7, a severe earthquake destroyed the town of Abancay, in the centre of the volcanic region of Peru. Probably 300 lives were lost at Abancay out of a population of 3000, and 250 casualties were reported from the city of Chalhuanca.

FOREIGN RELATIONS. On April 30 a new protocol was signed at Rio de Janeiro to provide for the delimitation of the boundary between Peru and Brazil by a mixed commission. The location of the Bolivian boundary was rendered especially troublesome by the value of the rubber-lands in question and the difficulty of surveying in densely-forested regions; nevertheless the boundary commissions agreed without trouble on a provisional boundary. As a result of the visit of Hon. Robert Bacon to Lima, in the interests of the Carnegie endowment, a Peruvian institute of international law was formed to act in conjunction with the institutes already existing in many American countries on questions concerning the politics and general welfare of Pan-American interests.

THE PUTUMAYO ATROCITIES. In the spring of 1913 a select committee of the British House of Commons investigated the alleged cruelty of the administration of the rubber industry in the Putumayo district of Peru. The report of the commission was issued as *White Paper 148* on June 9. The commission held that Señor Arana, together with his partners, was responsible for the atrocities committed by his agents. The British directors of the Peruvian Amazon Company were severely censured for culpable negligence in the matter of labor conditions, but no evidence was found that they had made themselves individually parties to any overt act which would expose them to prosecution. The committee recommended an extension of the British law to cover similar cases which might arise in the future.

As a result of the investigation carried on by the government of Peru, thirty-two warrants were issued for the arrest of persons suspected of complicity in the oppression of the native rubber workers. Referring to the matter in his message to Congress on July 28, President Billinghurst said, "Everything possible is being done to bring the blessings of civilization and Christianity to the savages of Putumayo, and in the cause of justice care has been taken to appoint men of ability and integrity to judicial and administrative posts there. Results obtained to date have been highly satisfactory, and the reports and rumors which so adversely affected the prestige of the nation have disappeared forever."

Nevertheless the scandals of the rubber industry were revived in November, this time implicating Brazil and Colombia as well as Peru. On November 15 the Anti-Slavery Society informed the British government that the oppression of native laborers was not confined to the Putumayo region, but existed also in Bolivian and Brazilian rubber districts along the upper Amazon. Men, women, and children were kidnaped, bought and sold, and shamefully beaten, it was charged. Action on these allegations was delayed, however, possibly for diplomatic reasons. See BRAZIL, CHILE, and ECUADOR.

PETROLEUM. The increased production of petroleum which characterized the industry in recent years continued in 1912, when the total in barrels of 42 gallons each reached 222,113,218, compared with 220,449,391 barrels in 1911. Except in California, higher prices prevailed than in 1911 and even in the latter State there was no considerable decline. The average price per barrel in 1912 was nearly $.74, as compared with about $.61 in 1911. The total value of the product in 1912 was therefore $163,802,334, or 22.2 per cent. above the value for 1911. California continued to hold first place in the production of petroleum, and the quantity produced in 1912 was 864,-450,767 barrels, compared with 81,134,391 barrels in 1911. Oklahoma was second in the production, with 51,427,071 barrels in 1912, compared with 56,069,637 barrels in 1911. Illinois with third rank produced in 1912 28,601,308 barrels, compared with 31,317,038 barrels in 1911. These three States furnished over three-fourths of the production. In 1912 West Virginia displaced Louisiana as the fourth producer, and Texas advanced from sixth to fifth place. The quantity and value of the petroleum produced in 1911-1912, and the average price per barrel is shown in the following table:

TOTAL QUANTITY AND VALUE OF PETROLEUM PRODUCED IN THE UNITED STATES AND THE AVERAGE PRICE PER BARREL IN 1911 AND 1912, BY STATES, IN BARRELS

State	1911 Quantity	1911 Value	1911 Average price per barrel	1912 Quantity	1912 Value	1912 Average price per barrel
California	81,134,391	$38,719,080	$0.477	86,450,767	$39,213,588	$0.454
Colorado	226,926	228,104	1.005	206,052	199,661	.973
Illinois	31,317,038	19,734,339	.630	28,601,308	24,332,605	.851
Indiana	1,695,289	1,228,835	.740	970,009	885,975	.913
Kansas	1,278,819	608,756	.476	1,592,796	1,095,698	.688
Kentucky	472,458	328,614	.696	484,368	424,842	.877
Louisiana	10,720,420	5,668,814	.529	9,263,439	7,023,827	.758
Michigan	....	....	....	(a)	(a)	....
Missouri	7,995	7,995	1.000	....	....	....
New York	952,515	1,248,950	1.311	874,128	1,401,880	1.604
Ohio	8,817,112	9,479,542	1.075	b 8,969,007	b 12,085,998	1.347
Oklahoma	56,069,637	26,451,767	.472	51,427,071	34,672,604	.674
Pennsylvania	8,248,158	10,894,074	1.321	7,837,948	12,886,752	1.644
Texas	9,526,474	6,554,552	.688	11,735,057	8,852,713	.754
Utah .... Wyoming	186,695	124,037	.664	1,572,306	798,470	.507
West Virginia	9,795,464	12,767,293	1.303	12,128,962	19,927,721	1.643
Total	220,449,391	134,044,752	.608	222,113,218	163,802,334	.737

a Included in Ohio. *b* Includes Michigan.

The petroleum producing area of the United States is divided into six chief fields. The Appalachian, the Lima-Indiana, the Illinois, the Mid-Continent, the Gulf, and the California fields. Of these, the Lima-Indiana, the Illinois, the Mid-Continent, and the Gulf fields show a decrease in 1912 over the production of 1911. The Appalachian fields, and the California fields are the only fields showing an increase. The total number of wells completed in 1912 was 17,178, compared with 13,768 in 1911. Of the total for 1912, 11,512 were oil wells, 1811 were gas wells and 2855 were dry. The yearly increase in petroleum during each year of the twentieth century was maintained in 1913. The amount produced in that year according to the estimates of the United States Geological Survey exceeded 240,000,000 barrels. The rate of increase at the end of the year was greater than at the beginning. The production of Colorado increased at least 10,000,000 barrels over 1912, reaching a production of almost 100,000,000 barrels. Oklahoma also showed an increase as did Texas, Louisiana, and Wyoming. Other States generally showed a decline, which was greatest in Illinois. The entire mid-continent field showed an increase with a record total output.

FUEL OILS. Of the total production of 222,113,418 barrels of fuel petroleum in 1912, about 85,000,000 barrels or over one-third were burned as fuel for power purposes. Railroads consumed 33,605,598 barrels in 1912, an increase over the amount consumed in 1911 of nearly 13 per cent. The number of miles of railroad operated by the use of oil, however, declined from 30,039 in 1911 to 28,451 in 1912. The decrease in the number of miles operated was due to the return of a few railroads to coal. Considerable quantity of oil was used in the production of power for industrial purposes. This was especially true on the Pacific Coast.

On the western coast of the United States oil had been adopted almost exclusively for vessels of the coastwise trade, and this use might be expected to extend to the east coast with the opening of the Panama Canal. The United States government definitely abandoned the use of coal in future designs of its battleships. All new destroyers, submarines, and battleships are designed for oil burning. About 100 square miles of oil producing lands in the Elk Hills and Buena Vista fields of California were set aside by the government as navy petroleum reserves. Storage for oil for naval purposes is provided in many cities of the United States and in Cuba and Hawaii.

WORLD PRODUCTION. Russia ranked next to the United States as a producer of petroleum. The production increased in 1912 to 68,119,268 barrels, compared to 66,183,691 barrels in 1911. The production in Rumania also increased in 1912. There were produced in that country 12,991,913 barrels, an increase of 17 per cent. over the production of 1911. The following table shows the world production of petroleum in 1908-1912:

WORLD'S PRODUCTION OF CRUDE PETROLEUM, 1908-12, BY COUNTRIES, IN BARRELS AND METRIC TONS

Country	1908	1909	1910	1911	1912			
					Rank	Barrels	Metric tons	Percentage of total production
United States.	178,527,355	183,170,874	209,557,248	220,449,391	1	222,113,218	29,615,096	63.25
Russia	62,186,447	65,970,350	70,336,574	66,183,691	2	68,019,208	9,317,700	19.37
Mexico	3,481,410	2,488,742	3,332,807	14,051,643	3	16,558,215	2,207,762	4.71
Du. E. Indies.	10,283,357	11,041,852	11,030,620	12,172,949	5	10,845,624	1,478,132	3.09
Rumania	8,252,157	9,327,278	9,723,806	11,107,450	4	12,991,913	1,806,942	3.70
Galicia	12,612,295	14,932,799	12,673,688	10,519,270	6	8,535,174	1,187,007	2.48
India	5,047,038	6,676,517	6,137,990	6,451,203	7	7,116,672	989,801	2.03

Country	1908	1909	1910	1911	Rank	1912 Barrels	Métric tons	Percentage of total production
Japan	2,070,145	1,889,563	1,930,661	1,658,903	9	1,671,405	222,854	.48
Peru	1,011,180	1,316,118	1,330,105	1,368,274	8	1,751,143	233,486	.50
Germany	1,009,278	1,018,837	1,032,522	1,017,045	10	995,764	*a* 140,000	.23
Canada	527,987	420,755	315,895	291,096	11	243,614	32,612	.07
Italy	50,966	42,388	42,388	74,709	12	*a* 86,286	*a* 12,000	.02
Other	*a* 30,000	*a* 30,000	*a* 30,000	*a* 200,000	..	250,000	33,333	.07
Total	285,089,615	298,326,078	327,474,304	345,512,185	..	351,178,236	47,276,725	100.00

a Estimated.

PHARMACY, SCHOOLS OF. See UNIVERSITIES AND COLLEGES.

PHELPS, CHARLES. An American surgeon, died December 30, 1913. Born in Milford, Mass., in 1834, and graduated from Brown University in 1855, he took his degree from the College of Physicians and Surgeons, New York, in 1855. During the Civil War he served as volunteer surgeon, and afterwards began the practice of medicine in New York City. He was several times president of the New York State Medical Association, and was president of the Bellevue Medical Hospital. He was surgeon of many other hospitals in New York City. He was the author of *Traumatic Injuries of the Brain* (1890), and various monographs on surgical subjects.

PHILIPPINE ISLANDS. AGRICULTURE. Agricultural conditions during 1913 were for the most part good. The rice crop during the fiscal year ended June 30, 1913, was one of the largest ever harvested and was fully 100 per cent. greater than the crop for the previous year. As a result of this unusually large crop, importations of rice decreased to the value of about $2,500,000. Conditions in regard to sugar were not so favorable. Sugar exports for the year increased approximately 30,000,000 kilos, although there was a decrease of nearly $1,000,000 in value owing to the low grade and low prices. The copra crop suffered severely from two causes. First, the unusual drought of the previous year, and second, the severe typhoons which occurred throughout the copra districts. The tobacco crop was slightly greater than in 1912, and planters on the islands are beginning to give more attention to modern methods of growing and curing tobacco. The exportation of cigars increased from 175,000,000 in 1912 to 207,000,000 in 1913, while the exportation of leaf and miscellaneous tobacco also increased. The total exports of tobacco for the fiscal year amounted to $5,350,000. The exportation of abaca (hemp) was the largest in the history of the industry, owing to the unusual high price of the product. Although six per cent. less was exported than in the previous year, its value was over 41 per cent. more. The total exports amounted to more than $23,000,000. In many parts of the islands there is a tendency to give more attention to crops other than those which have heretofore composed the great bulk of the export. The agricultural bank which was opened for business on October 1, 1908, had made by the fiscal year 1913 390 loans amounting to $880,126. Of these loans, 122 were for amounts of not more than $500; 155 for amounts between $500 and $2500; 56 for amounts between $2500 and $5000; 39 for amounts between $5000 and $10,000; and 18 between $10,000 and $17,500. The increase in the business of the bank during the year was very noticeable. Loans made amounted to $514,375, compared with $403,673 in 1912.

COMMERCE. The total value of foreign commerce for the fiscal year 1913 amounted to $110,010,859, as compared with $104,869,811 for the previous year. There was during the year continued development in the commercial activities of the islands. Imports amounted to $56,327,533 and exports to $53,683,526, as compared with $50,319,836 for the previous year. Of the total commerce of the islands, 41 per cent. was with the United States. Hemp occupied first place among exported articles in which it was forced last year by copra. As noted above, the value of hemp exported was greater than ever before. Shipments of sugar were also larger during 1913 than ever before.

TRANSPORTATION. The total length of railroad lines authorized by law constructed in the Philippine Islands is 1793 kilometers. Of this in 1913, 1050 had been constructed and put in operation, 88 constructed and not in operation, leaving 655 to be constructed. Progress was made during the year on the Baguio branch of the Manila railroad and the equipment ordered was expected during 1914. The branch was 24 miles in length and was under construction by a force of about 3500. The line included three tunnels and 123 bridges. Eight miles of the road involved a rack track. On June 30 four miles of track had been laid and the roadway had been completed for seven miles at either end.

IMMIGRATION AND EMIGRATION. During the year 1913 18,365 persons sought admission to the islands, as compared with 15,198 in the previous year; and 21,436, as compared with 19,606 for 1912, departed from the islands. Of the number who entered, 4408 were immigrants, and those who departed 768 were emigrants.

POSTS AND TELEGRAPHS. The number of post offices in operation was increased from 587 on June 30, 1912, to 590 on June 30, 1913. Forty-two additional municipalities were provided with free delivery letter carrier service, making a total of 439 municipalities outside of the city of Manila in which such service is rendered.

The metric system of weights and measures was adopted for the Philippine Postal Service, taking effect January 1, 1913. Money order service was established at 22 additional offices, making a total of 275 money order offices in the Philippine Islands on June 30, 1913. The postal bureau handled a total of 687,307 telegrams during the year. On June 30, 1913, the total kilometers and the number of telegraph offices in operation was 290. Several new wireless stations were also constructed and opened during the year. At the close of the year there were 437 postal savings banks in operation, and the number of accounts was 39,000 Of the total number of depositors, 32,906 were Filipinos. The amount of deposit was $1,240,241.

Education. The standard of English instruction was raised materially during the year, and the campaign for better school buildings and grounds was vigorously continued with successful results. The number of Filipino teachers on duty at the close of the school year was 7013. This force showed great advancement in their average attainments and ability to teach. Filipinos are being assigned to positions of greater responsibility as rapidly as possible. The total number of school houses classed as permanent, in use during the year, was 592. During the year 440,995 pupils were enrolled with a daily attendance of 287,995. A new building was occupied by the Philippine Normal School at Manila during the year. Of those who graduated from this school during the last three years, 97 per cent. have entered the teaching service. The Philippine Arts and Trades School has steadily increased in popularity, and it has been necessary to turn away a number of candidates for admission. The School of Commerce also shows continued progress in the number and character of pupils admitted. The School of Household Industries completed the first year of its existence in 1913. Its purpose is to train adult women in certain selected home industries, particularly in embroidery and lace-making. The attendance is approximately 120 women.

Public Works. The Bureau of Public Works has charge of public works in the Christian provinces. These projects include the erection of buildings, roads, and bridges, the building and supervision of building of irrigation systems, the drilling of artesian wells or construction of other water supply systems, river control, sewerage systems, and power plants. The bureau maintains and operates all government and automobile lines, and is charged with the enforcement of the automobile law. During 1913 257 kilometers of first-class roadways were constructed, making a total of 2097 kilometers of first-class roads in the islands, not including Manila, Moro Provinces, except Benguet. During the year $1,145,000 was spent in construction, and $790,000 was spent in the maintenance of existing roads. The principal buildings constructed during the year by the administration was a University Hall in Manila. This was built of reinforced concrete at a cost of $125,897.

Finance. The total bonded indebtedness in the municipal governments of the Philippine Islands at the close of the fiscal year 1913 was $16,125,000, composed of Friar Land bonds, $7,000,000, public works construction bonds, $4,000,000, and City of Cebu bonds, $125,000. The total amount of currency circulation in the islands on June 30, 1913, was $26,017.104.

Public Health and Sanitation. The public health during the year was in the main excellent. The only untoward event was the outbreak just before the beginning of the year and continuing through the first six months of cases of bubonic plague, from which the country had been free since 1906. For the first time in many years there was no record of a case of cholera on the islands. Beriberri continued to be practically non-existent wherever the use of unpolished rice con be enforced. The general sanitation of the islands continued to improve during the year, though everywhere the need of sanitary improvements, education, and inspection is much greater than can be met with the funds available. No serious epidemic occurred during the year in any part of the islands. The legislature of 1913 made appropriation for opening the Southern Islands Hospital, which had been ready for nearly a year but had not been used on account of failure of appropriation.

Use of the English Language. On June 1, 1913, the English language replaced the Spanish as the official language of the courts, but the legislature adopted an amendment by which, while the English language remains the primary official language of the courts, Spanish remains to a certain extent an official language until January 1, 1920.

Military Operations. In June trouble with the Moros on the island of Jolo or Sulu, resulted in a fierce battle between the United States troops and the natives. General Pershing who commanded the American troops declared in his dispatch there had been no fiercer fight since the American occupation. The island of Jolo is six or seven hundred miles from Manila, and its inhabitants differ entirely in characteristics from the civilized Filipinos. They are Mohammedans, fanatics, and fierce fighters. These Moros live not only in Jolo, but in the island of Mindanao in the northeast. In both islands the Americans have labored to advance the natives in commerce and civilization. In spite of these efforts hostility still continues to exist on the island of Jolo. General Pershing believed that to secure permanent peace in the mountain and island district, it was essential that these Moros should be disarmed. Some of the tribe resented this and entrenched themselves in the mountains. A long period of campaigning followed and came to its climax when the American troops, by fierce fighting, captured the main entrenchment of the natives on June 12. The loss of the Moros is not known, but it was great, and it is probable that few escaped alive. The American loss was 14 killed, and 25 wounded, including Captain Taylor A. Nichols.

In a dispatch sent to the War Department, Governor Forbes said that General Pershing had exhausted all the virtues of patience before attacking the rebels and that their punishment was required in the interest of good government. In reply to a request from the Secretary of War, Major General J. Franklin Bell, commanding the forces in the islands, also made a report. He said that the total number of Moros who had refused to give up their arms was between 5000 and 10,000, and that they were persecuting other Moros who had submitted. He highly commended General Pershing in the latter's management of the affair.

Changes in the Government. The inauguration of a Democratic administration foreshadowed the change of the higher administrative officers of the islands. The Democratic platform of 1912 pledged the independence of the Filipinos at a much earlier period than the Filipinos had been able to anticipate under President Taft's administration, and soon after Congress convened in 1913, a bill was introduced by Representative Jones of Virginia, which provided for a prompt withdrawal of American authority in the Philippines. This bill provided in general that preparations for the withdrawal should begin at once, and that an independent republic of the Philippines should be established on July 1, 1921. No effort was made to show that President Wilson was in sympathy with this bill.

On September 2 President Wilson appointed Francis Burton Harrison governor-general, to succeed W. Cameron Forbes. Mr. Burton arrived at Manila on October 6. He was greeted there with a great demonstration. Soon after his landing, Mr. Harrison delivered an address. The significant portion which was considered a message of President Wilson to the people of the Philippines, was as follows: "We regard ourselves as trustees acting not for the advantage of the United States, but for the benefit of the people of the Philippine Islands. Every step we take will be taken with a view to the ultimate independence of the islands and as a preparation for that independence; and we hope to move toward that end as rapidly as the safety and the permanent interests of the islands will permit. After each step taken, experience will guide us to the next. The administration will take one step at once. It will give to the native citizens of the islands a majority in the appointive commission, and thus in the upper as well as in the lower house of the legislature. It will do this in the confident hope and expectation that immediate proof will thereby be given, in the action of the commission under the new arrangement, of the political capacity of those native citizens who have already come forward to represent and lead their people in affairs."

This assertion relating to the members of the commission foreshadowed the most radical change in the history of the administration of the islands in many years. Heretofore, the governor-general, with eight associates, constituted the Philippine commission. These members are appointed by the President and their work comes under the direction of the Secretary of War through the bureau of insular affairs. The Philippine commission at first consisted entirely of Americans. A few years ago one Filipino was appointed and subsequently one or two more, the majority remaining American. Each member of the commission is executive head of a department of the Philippine government, and the commission as a whole forms the upper chamber or Senate of the legislature. Governor Harrison acted on this promise, and appointed a sufficient number of active members of the commission to give to the Philippines a majority of the membership. The members appointed were the following: Rafael Pelma, Jaime C. de Veyra, Vincente Ilustre, Vincente Singsong. The first of these was appointed secretary of finance and justice. At the same time other changes among the officials of the islands were made. Manuel Tinio succeeded Captain Charles H. Sleeper as director of the bureau of lands. In the bureau of internal revenue, 37 of the 85 American collectors employed were displaced by natives. Stephen Bonsal, the well-known correspondent and traveler, was appointed assistant executive secretary to succeed Thomas C. Welch. The chief administrative officers at the end of the year were as follows: Governor-general and president of the commission, Francis Burton Harrison; secretary of the interior and member of the commission, Winfred T. Denison; secretary of commerce and police and member of the commission, Clinton L. Riggs.

Legislature. The first regular session of the third Philippine legislature began October 16, 1912, and ended February 3, 1913. A special session was convened at Manila in accordance with a proclamation of the governor-general and continued in session until February 11. The legislature failed, as it had the previous year, to pass the appropriation bill for current expenses of the government for the fiscal year 1914, so that it was necessary to pay the expenses of the government in accordance with the provisions of section 7 of the organic act. The only important legislation passed by Congress affecting the islands is contained in the tariff bill, approved October 3, 1913. This law affected the exportation of sugar, rice, and tobacco. It made the following changes in the previous law governing trade between the United States and the Philippine Islands:

1. The limit in the amount of sugar and tobacco authorized to enter the United States free of duty was removed, and these two products will hereafter enter the United States free of duty, without limit as to quantity.

The provision excepting rice produced in the Philippines or in the United States from free entry into the United States or the Philippines, respectively, was repealed. This is unimportant, as there is no tendency to ship rice either way, but it strikes from the law an irritating exception to the general rule.

2. The provision in the preceding tariff laws that goods entitled to free entry to the United States coming from the Philippine Islands, and *vice versa*, must come as a direct shipment has been changed in the present law to provide that they may be shipped on a through bill of lading. The effect of this will be to allow transshipments en route either way.

3. The tariff act of 1909 provided that a Philippine product, fulfilling all other conditions for free entry, should be admitted free of duty into the United States, if it did not contain foreign material to more than 20 per cent. of its total value. This 20 per cent. limit was inserted to protect the American tobacco industry.

It was hoped, in the revision of the tariff, that, while this 20 per cent. limit would be continued in the case of manufactures of tobacco, it would be increased to 50 per cent. for all other Philippine products. This would have given a much desired stimulus to the embroidery and lace industry in the islands which through the schools is being developed. There does not appear to have been any serious objection to making this change, but, although the bill as it passed the House contained this *proviso*, it was impossible to secure its adoption in the great rush of other matters confronting the conference committee. The effect, therefore, is to retain the provision of the old law in this respect.

The tariff bill affected existing Philippine legislation in other respects as follows:

1. All export duties on products shipped from the Philippine Islands were abolished regardless of the destination of the goods.

The importance of this legislation to the

American trade is in the fact that it deprives the American manufacturer of Philippine products, principally Manila hemp, of the differential granted him formerly by the fact that he was exempted from the payment of export tax on hemp, whereas the foreign manufacturer of Manila hemp was required to pay this export tax. It has the effect of relieving the Philippine producer of an annual tax of approximately $1,500,000, $1,000,000 of which accrued to the treasury of the Philippine Islands, and $500,000 to the benefit of the consumer of hemp in the United States.

2. The provisions of former laws that all internal revenue collected in, or for account of the Philippine Islands, should accrue intact to the general government thereof and be paid into the insular treasury are continued, but the requirement that such revenues should be allotted and paid out by the Philippine commission until action by the Philippine legislature, approved by Congress, was stricken out.

This has the effect of giving to the Philippine legislature the same authority over these funds as over other revenues of that government.

3. The income-tax provisions of the present law were extended to the Philippine Islands, with the proviso that it should be collected in the Philippine Islands by their own internal revenue officers and accrue intact to the Philippine government.

SLAVERY AND AGITATION. As a result of charges of practical slavery in the islands, proceeding from different sources, including Dean C. Worcester, former secretary of the interior of the islands, the Senate on May 1 passed a resolution requesting the secretary of war to furnish any information that might bear on the truth of the charge that human slavery exists in the islands and that human beings are bought and sold as chattels. Mr. Worcester later submitted a report to the Secretary of War, designed to justify the position which he had taken. In this he alleged the existence of slavery peonage, and the barter of human beings in the islands. He alleged further that such conditions had existed for a number of years and that his efforts to bring about correction had not met the support to which he felt they were entitled. As a result of these charges, the Philippine legislature passed measures designed to put an end to such conditions as might exist.

PHILOLOGY, CLASSICAL. An important event, from a pedagogical point of view, and, in the opinion of many, from a scientific standpoint, also, was the completion of the report of the joint committee on grammatical nomenclature (see the YEAR BOOK for 1911, 1912). This report has had the approval, though, in some cases, without adequate discussion of its merits, of the National Council of Teachers of English, the Modern Language Association of America, and the American Philological Association. The report gives, in twelve pages, uniform grammatical terms to be used in the teaching of English, French, German, Greek, and Latin; fifty pages are devoted to discussion and illustration of these terms.

The Loeb Classical Library (see YEAR BOOK for 1911, 1912) was continued by the addition e.g. of translations of Petronius and the *Apocolocyntosis* of Seneca (in one volume), part of Lucian, part of Julian the Emperor, and Quintus Smyrnæus, *The Fall of Troy.* The Oxford Library of Translations was also extended; e.g. the excellent translation of Aristotle's works was carried further. Of special interest is a good translation of Varro's *Rerum Rusticarum Libri Tres,* under the title, *Varro on Farming,* by Lloyd Storr-Best (London, 1912). A less trustworthy translation of Varro is to be found in *Roman Farm Management: The Treatises of Cato and Varro done into English, with Notes of Modern Instances, By a Virginia Farmer* (New York).

Of the articles in periodicals, widely varied in scope, and for the most part highly technical or devoted to matters not of wide general interest, only a very few can find mention in this place. However, to indicate the tendencies of American classical scholarship, the articles which appeared in the leading American classical periodicals may be noted in some detail. In *The American Journal of Philology* appeared in opposition to the views of A. Gudeman, whose rejoinder was printed in the same volume, "The Dialogue of Tacitus," (a discussion of manuscript problems), W. Peterson; "Note on Satyrus, Life of Euripides, Oxyr. Pap. 9, 157-8," K. F. Smith (an article at once scholarly and entertaining, in which Professor Smith, *inter alia,* discusses the use of magic in affairs of the heart); "The Classical Origin and Tradition of Literary Conceits," (the conceits employed by the literary lover to praise the beauty of his lady are traced back to classical, and especially to Greek sources), M. B. Ogle; "Contributions to the Study of Homeric Metre," G. M. Bolling; "The Participial Usage in Cicero's Epistles," R. B. Steele; "Horace's View of the Relations between Satire and Comedy," H. R. Fairclough; "*Neve* and *Neque* with the Imperative and Subjunctive," E. B. Lease; "The Accusative of Exclamation in Epistolary Latin," R. C. Flickinger; "The Creation of the Tribe Ptolemais at Athens," A. C. Johnson. Under the caption "Brief Mention," Professor Gildersleeve discussed White's "The Verse of Greek Comedy," Wilamowitz's "Reden und Vorträge" and "Sappho und Simonides," and Humphreys's edition of Demosthenes's "De Corona." Three reviews deserve mention: By K. F. Smith, of "ΧΑΡΙΤΕΣ Friedrich Leo zum Sechzigsten Geburtstag dargebracht" (part of the book deals with Roman elegiac poetry; there Professor Smith's review is of special value); by K. Prentice, of Drerup's "Das Fünfte Buch der Ilias. Grundlagen einer Homerischen Poetik" (Professor Prentice takes issue vigorously with the methods and the reasoning of the group of scholars who in recent years have maintained the unity of the Iliad and the Odyssey); by A. L. Wheeler, of Professor K. F. Smith's great edition of Tibullus (which was itself published in 1913).

From *Classical Philology* may be noted "Some Temporal Expressions in Suetonius," J. C. Rolfe; "The *Amphitruo* of Plautus," H. W. Prescott (an argument that in this play too Plantus "contaminated," that is, combined materials from two different plays, with the result that the play calls for a change of scene, a phenomenon rare in extant Greek and Roman dramas); "Preferred and Avoided Combinations of the Enclitic *Que* in Cicero," F. W. Shipley, a continuation of the author's studies in rhymical clausulæ in Latin prose authors; "The Composition of the *Rudens* of Plautus," Cornelia C. Coulter (an argument that the Rudens also was "contaminated": see above); "The Interstate Use of the Greek Dialects," C. D. Buck; "Studies in Greek Noun Formation," E. H. Sturtevant; "Satura and Satire," B. L. Ullman (an interesting explanation of the puzzling term *Satura*, as a neuter plural adjective transformed into a feminine singular noun, and an examination of the occurrences of the word in Latin authors); "Homerica," W. A. Oldfather, a suggestive interpretation of certain terms in Homer; "Tragedy and the Satyric Drama," R. C. Flickinger; "The Vedic Path of the Gods and the Roman Pontifex," R. G. Kent (an interpretation of the Pontifex as the "Pathmaker," the path being that between gods and men or between this world and the other); "The Assumed Duration of the War in the Iliad," John A. Scott; "The Future Periphrastic in Latin," R. B. Steele. Of the reviews one must be mentioned—a review, by several hands, of Gercke and Norden, "Einleitung in die Altertumswissenschaft."

In volume 43 of *The Transactions of the American Philological Association* we find the following papers, among others: "Are the Political 'Speeches' of Demosthenes to be regarded as Political Phamphlets?" C. D. Adams; "The Pronunciation of *cui* and *huic*," E. H. Sturtevant; "Parmenides' Indebtedness to the Pythagoreans," R. B. English; "On the Development of the Thank-Offering among the Greeks," J. W. Hewitt; "Officials Charged with the Conduct of Public Works in Roman and Byzantine Syria," K. Prentice; "Horace, Epistles, II., 1,139 *ff*. and Livy, VII., 2," C. Knapp; "The Development of Copulative Verbs in the Indo-European Languages," C. L. Meader (an interesting and valuable study of the substitutes and equivalents in various languages for such copulas as the English verb "to be" or the Latin *sum;* some of the Less Known MSS. of Xenophon's *Memorabilia*," W. W. Baker.

The Year's Work in Classical Studies, for 1912, gives control of the more important works in classical philology to the middle of the year 1912; the like volume for 1913 performs a similar service for the period ending June 30, 1913. Klusmann's *Bibliotheca Scriptorum Classicorum et Grecorum et Latinorum*, noticed in the last YEAR BOOK, was completed; it gives a list of works, books, and articles on both Latin and Greek authors from 1878-1896.

Of "Greek Inscriptions from Sardes," by Messrs. W. H. Buckler and D. M. Robinson, in *The American Journal of Archæology*, noted in the last YEAR BOOK, two more installments have appeared; these deal with the honorific inscriptions. In the same periodical Professor Robinson has published "Inscriptions from the Cyrenaica," giving control of the inscriptional material found by the American excavators at Cyrene before their work was permanently interrupted by the Turco-Italian War. In *Publications of the Princeton University Archæological Expeditions to Syria in 1904-5, and 1909, Division III.*, D. Magie, Jr., and D. R. Stuart deal with "Greek and Latin Inscriptions from South Syria." Volume 9, Fascicule 4, has appeared of *Ephemeris Epigraphica*, giving supplements to the great *Corpus Inscriptionum Græcarum*. Parts also of *Inscriptiones Græcae*, in an editio minor, under the supervision of the Royal Prussian Academy, have been published, giving inscriptions from Attica, Arcadia, and Laconia. R. Cagnat, the well-known epigraphist, published *Melanges, Recueil des 25 Mémoires concernant l'épigraphie et les Antiquités Romaine.*

In palæography far the most important work in English was E. M. Thompson's *An Introduction to Greek and Roman Palæography* (1912), a sumptuous and richly illustrated revision of a work published by the author many years ago. A. W. Sitjhoff added volumes xvii. and xviii. to his incomparable collection of photographic facsimiles of Greek and Latin manuscripts, by publishing facsimiles of the "Codex Heinsianus (Leidensis 118)" of Cicero's *De Natura Deorum, De Divinatione, De Legibus* and of the "Codex Vossianus Quadratus" of Lucretius's *De Rerum Natura.* Two parts have appeared of volume i. of *Papyrusurkunde, Griechische, der Hamburger Stadtbibliothek*, edited by P. M. Meyer. To be specially named, also, are A. S. Hunt's edition, in the Oxford classical texts series, of *Tragicorum Græcorum Fragmenta Papyracea nuper reperta;* Gardthausen, *Griechische Palæographie*, volume 2, 2d edition, dealing with *Die Schrift, Unterschriften und Chronologie im Altertum und in Byzantinischen Mittelalter;* Chroust, *Monumenta Palæographica*, part 1; F. Preisigke, *Berichtigungsliste der griechischen Papyrusurkunden aus Ägypten*, 1 Heft, and *Sammelbuch Griechischer Urkunden aus Ägypten*, 1 Heft; L. Mitteis and U. Wilcken, *Grundzüge und Chrestomathie der Papyrusurkunde*, 2 volumes, which give a general introduction to the study of the papyri, and a judicious selection of texts from papyri, especially those that are historical or legal in character; an article in *La Musée Belge*, by N. Holwein, giving select papyri, with translations and copious commentary; and, finally, an article by D. Bassi, in the *Rivista di Filologia e d'Istruzione Classica*, on the steps taken to preserve and make accessible the collection of papyri from Herculaneum to be found in the Museo Nazionale at Naples. Under the title *Dikaiomata*, there was published at Berlin a work giving "Auszüge aus Alexandrinischen Gesetzen und Verordnungen in einem Papyrus des Philologischen Seminars der Universität Halle." In 1912, Professor H. A. Sanders, of the University of Michigan, completed his publication of the manuscripts of the Old and the New Testament obtained a few years ago, from Egypt, by Mr. Charles A. Freer of Detroit; for a notice of Professor Sanders's work, and an indication of the value of the manuscripts see *The Classical Weekly* 6, 213-214.

In the field of religion we may note, first, that L. R. Farnell's *The Golden Bough* is undergoing revision in much extended form. Three essays by American women may be mentioned: *Religious Cults Connected with the Amazons*, Florence M. Bennett; *Cretan Elements in the Cult and Ritual of Apollo*, Mary H. Swindler; *The Cults of Ostia*, Lily Rose Taylor. Worthy of mention also are *Les Prêtres Danseurs de Rome*, R. Cirilli (a study of the Roman priests called the Salii); *Greek Divination: A Study of its Methods and Principles*, W. R. Halliday; *Cultes, Myths, et Religions*, S. Reinach; *Four Stages of Greek Religion*, G. Murray (1912); *Agnostos Theos. Untersuchungen zur Formengeschichte religiöser Rede*, E. Norden. In the last named article the author, starting with St.

Paul's speech at Athens and the altar-inscription ΑΓΝΩΣΤΩ ΘΕΩ,. "tries to show that the speech conforms to a fixed type of Jewish-Christian missionary preaching, which can be traced back to old Greek prophetic addresses, but owed its special characteristics to later Hellenism as modified by Oriental and Jewish influences." See *The Classical Review*, 27, 199-200. In the Italian *Athenæum*, founded in 1913, at Pavia, G. d'Amico had an article on the Roman cult of Fortuna in the oldest times. He held that the Sabines had a similar cult, though under a different name. The cult, developed first under Etruscan, then under Greek, influence, took more definite shape, and by the end of the Punic wars Fortuna became one of the chief divinities of Rome. In the kindred field of philosophy we may note *Stoics and Sceptics*, E. Bevan; *Die Anfänge der Griechischen Philosophie*, 2d edition, J. Burnet;; *Aischines von Sphettos*, H. Dittmar, a valuable contribution to the literary history of the Socratic school. The fourth and last volume of *Greek Thinkers*, the English version of Th. Gomperz's great history of Greek philosophy, appeared late in 1912; it deals with Aristotle and his successors.

In *The Classical Quarterly* J. D. Denniston published "Some Recent Theories of the Greek Modes," in which he examined theories of Greek music set forth in Monro's well known *Modes of Ancient Greek Music*, in Macran's edition of Aristoxenus (a Greek writer of the fourth century B.C., the greatest student in Greek times of the science of music and rhythm), and in a paper by Professor Cook-Wilson. In the *Rivista di Filologia e d'Istruzione Classica*, M. L. de Gubernatis dealt with Roman music and poetry from its inception to Augustus; he held that the poems of Catullus and Horace were sung to a musical accompaniment.

For a good list and discriminating review of the more important work done in linguistics or comparative philology during the past four or five years see "Recent Literature on Comparative Philology," by E. H. Sturtevant, in *The Classical Weekly*, 6. 114-116. Brugmann's great "Griechische Grammatik," part of volume 2 of Müller's *Handbuch der Klassichen Altertumswissenschaft*, appeared in a fourth edition, the work of A. Thumb. Hirt's *Handbuch der Griechischen Laut- und Formenlehre* was issued in a second and much improved edition. Of Thumb's "Handbook of the Greek Vernacular," noticed in the last YEAR BOOK, a fine summary may now be found in *Classical Philology* for January, 1914. V. Magnien's *Le Futur Grec*, 2 volumes, should also be noted, as also A. Meillet's *Aperçu d'une Histoire de la Langue Grecque*, and R. B. Steele's *Case Usage in Livy IV. The Ablative*. Of Boisacq's *Dictionaire Etymologique de la Langue Grecque*, the best work on Greek etymology, three parts 9-11) appeared, bringing the work down through ΣΚΥΛΟΝ. Much important work in these fields was published in the periodicals known as *Glotta*, *Indogermanischen Forschungen*, and *Zeitschrift für vergleichende Sprachforschung*.

In lexicography the most noteworthy event is the appearance of parts 1-2 of a revision of Passow's *Wörterbuch der Griechischen Sprache*, undertaken by W. Crönert. The work is to appear in 50 parts, of 80 pages each. H. Merguet's "Lexikon zu Vergilius" was brought to a close late in 1912; for a review of this work, as of M. N. Wetmore's valuable "Index Verborum Vergilianus," by C. Knapp, see *The Classical Weekly* 6, 101-103, 109-111; Professor Wetmore published also an *Index Verborum Catullianus* (1912). Parts of volumes 5-6 of the monumental *Thesaurus Linguæ Latinæ* were published in the year. Volume 8 of Pauly-Wissowa's *Real-Encyclopädie der Classischen Altertumswissenschaft*, covering "Helikon-Hyagnis" was issued, with remarkable promptness (the completion of volume 7 was noted in the last YEAR BOOK).

In the fields of Greek and Roman history and life we must notice *Greek Imperialism*, W. D. Ferguson, a study of the development of imperialism under Macedonian rule; *Ancient History*, and *Readings in Ancient History*, H. Webster; *The Cambridge Mediæval History*, volume 2, which contains a fine article on "Roman Law," by J. S. Reid; *The Municipalities of the Roman Empire*, J. S. Reid (the book seeks "to provide students with a survey of the Roman Empire, regarded in one of its most important aspects, that of a vast federation of commonwealths, retaining many characteristics of the old so-called 'city-state'"); *Antigonos Gonatas*, W. W. Tarn, an account of the history of Macedonia and Greece from 294-250 B.C., worked out in relation to a central figure; *The Hellenica Oxyrhynchia: Its Authorship and Authority*, E. M. Walker; *International Arbitration amongst the Greeks*, M. N. Tod; *L'Armée Romaine d'Afrique et Occupation militaire de l'Afrique sous les Empéreurs*, R. Cagnat; *Geschichte der Carthage*, volume 3. O. Meltze; *Imperium Romanum*, volume 1, *Die Staatsverträge und Vertragsverhältnisse*, E. Täubler. Mr. Walker's book (see above) is a discussion of the fragments of a Greek historian published in the *Oxyrhynchus Papyri V.* (see the YEAR BOOK for 1908); he ascribes the fragments to Ephorus, a Greek historian of Cyme, in Asia Minor, who lived about 400-330 B.C. Another important book, published in 1912, is *Zur Geschichte der römischen Censur*, O. Leuze. Late in the year appeared E. H. Minn's *Scythians and Greeks*, a survey of ancient history and archæology on the north coast of the Euxine from the Danube to the Caucasus; F. W. Hasluck, *Cyzicus*, a history of Cyzicus and the adjoining towns, and a study of their antiquities. Of importance, too, is a translation, with introduction and notes, of the *Constitution of Aristotle*, by F. G. Kenyon (1912). For works on the early civilization known as Ægean or Mycenæan or Minoan see "Crete and Cretan Archæology," by T. L. Shear, in *The Classical Weekly*, 7, 82-85. Volume iv. of *Roman Life and Manners under the Early Empire*, a translation of Friedlaender's great work *Sittengeschichte des Roms*, giving a rendering of the excursuses and notes to Friedlaender's work, appeared. Note also E. S. Bouchier, *Life and Letters in Roman Africa;* F. Henkel, *Die römische Fingerringe der Rheinlande und der genachbarten Gebiete*. Under the general title of *Lehrmittel für den Geschichtsunterricht*, the Verlag A. Pichlers Witwe und Sohn (Vienna and Leipzig) published a very valuable series of "Wandtafeln und Modelle zur Veranschaulichung des Lebens der Griechen und Römer." Three works dealing with ancient Greek science deserve special notice—a pamphlet by D'Arcy Wentworth Thompson, the biologist, *On Aristotle as a Biologist*; a longer work, *Aristotle's Researches in Natural Science*, T. E. Lones; and T. Heath's

Aristarchus of Samos, giving a new Greek text of Aristarchus, with translation and commentary, a valuable contribution to the history of astronomy among the Greeks. Two books on Roman law must, finally, be named—*Elementary Principles of the Roman Private Law*, W. W. Buckland, and *Iustiniani Institutionum Libri Quattuor*, edited with introduction, notes, and excursuses, by J. B. Moyle.

In the field of Greek and Latin literature we note first *Geschichte der römischen Litteratur. Erster Band. Die Archaische Litteratur*, by F. Leo, an ardent champion of the doctrine that Roman literature has in it many important elements of originality. Part 2, second half of M. Schanz's invaluable *Geschichte der römischen Litteratur*, appeared in the third edition, much improved and enlarged: it covers the period from the death of Augustus to the reign of Hadrian. Volume iii. of edition 6 of W. S. Teuffel's *Geschichte der römischen Litteratur*, dealing with the literature from 96 A.D. to the end of antiquity, was also issued: the authors were W. Kroll and Franz Skutsch. The fifth edition of Christ's *Geschichte der Griechischen Litteratur*, revised by W. Schmid, was brought to a close by the publication of part 2, second half, dealing with 100-530 A.D. Sandys's *Companion to Latin Studies* was issued in a second edition, which was, however, but slightly altered from the first.

From the host of new books worth mentioning the following may be selected: *A Companion to Classical Texts*, F. W. Hall (the book is a valuable aid for students who wish to orientate themselves in the textual criticism of Greek and Latin authors); *Histoire de la Comédie Romaine*, G. Michaut; *English Literature and the Classics*, a series of papers, by various scholars, on the relation of various departments of English literature to the Classics; *Ægean Days*, an account of long sojourns in the Greek islands, J. I. Manatt; *Reden und Vorträge*, Ulrich von Wilamowitz-Mœllendorf, third edition (of the six new papers the most important is "Geschichte der Griechischen Religion, Eine Skizze"); *Sappho und Simonides, Untersuchungen über griechische Lyriker*, Wilamowitz; Usener, *Kleine Schrifte*, 4 volumes (1912-13); *Die Hellenistisch-Römische Kultur*, an admirable book, richly illustrated, by F. Baumgarten, Franz Poland, R. Wagner, a continuation of their earlier book, *Die Hellenische Kultur*, which reached its third edition in 1913; F. Boll, "Die Lebensalter," in *Neue Jahrbücher für das klassische Altertum*, an elaborate survey of the conventional divisions of human life, down to Shakespeare's famous "Seven Ages of Man," in *As You Like it*. Much needed substitutes for obsolete parts of Müller's *Handbuch der Klassischen Altertumswissenschaft* are Th. Birt, "Kritik und Hemmeneutik," and W. Larfeld, "Griechische Epigraphik." The papers of the late Professor A. W. Verrall were published during the year in two volumes, *Literary Essays Classical and Modern*, and *Collected Studies in Greek and Latin Scholarship*.

Of work on special authors there is space to mention only T. Stangl, *Ciceronis Orationum Scholiastæ*, volume 2, indispensable to editors of the text of Cicero's orations; M. W. Humphreys, edition of Demosthenes's *De Corona;* W. M. Lindsay's edition of the text of Festus, epitomizer of Verrius Flaccus, the Roman lexicographer, of the Augustan Age, which for the first time makes these important fragments easily accessible; the second edition of C. Herschel's *Sextus Iulius Frontinus, On the Water Supply of the City of Rome;* E. Drerup, *Das Fünfte Buch der Ilias* (by examining the review of this book by A. Shewan in *The Classical Review* 27, 230-233, and that by K. Prentice in *The American Journal of Philology*, 34, 332-340, the reader will get the points of view of the two schools of Homeric criticism); Gætano Curcio, *Q. Orazio Flacco studiato in Italia dal Secolo XIII al XVIII*, a study of the treatment and interpretation of Horace by editors and professional scholars, and, more valuable, of his influence on Italian literature; R. Pichon, "Les Sources de Lucain" (1912), reviewed in 1913 by J. W. Basore, in *The American Journal of Philology;* J. Mussehl, *De Lucretiani Libri Primi Condicione et Retractatione* (for a favorable review and summary of the book see *The Classical Review* 27, 143 ff.); K. F. Smith, edition of Tibullus, complete, the best edition of that author in any language, summarized and reviewed in *The American Journal of Philology* 34, 461-470. In the Italian *Athenæum*, founded in 1913, Carlo Pascal discusses the poem known as the Moretum, ascribed by ancient tradition to Vergil. He decides against Vergilian authorship, and so is in interesting opposition to the tendency, marked in recent English scholarly work on Vergil, to regard as in fact from Vergil's hand the minor poems ascribed to him by tradition, but for a long time, viewed by scholars, on the whole, as not his work (for such English studies see *The Classical Weekly* 6, 110).

PHILOLOGY, Modern. The year 1913 has been remarkable for the number and variety of productions made in all sections of this extensive field. While few monumental works were issued, a wealth of detailed dialect studies, so necessary for accurate research, more than made up for this defect. Special emphasis seems to have been laid upon the Germanic (particularly German and Scandinavian), Romance, and Celtic languages, while the comparatively new science of phonetics attracted considerable attention. In fact, by means of their more perfect methods and increased material, phoneticians are rendering invaluable service to general linguistics and comparative philology. The science of semantics or the development of meanings of words, received a great impetus by the publication of the fourth volume of Nyrop's *Grammaire historique de la langue française* (Paris, 1913), in which an effort is made for the first time to establish this subject on a firm basis. Michel Bréal, the founder of this science, and his immediate disciples had limited themselves to special examples, thereby indicating in a general way the wide range of possibilities for research in this hitherto virgin field. Though Professor Nyrop's study leaves much to be desired with regard to certain aspects of this science, it will serve without doubt as a guide for those who will continue the researches he has so well begun. We may expect therefore in the near future numerous contributions to this rich and valuable science. It may be added that in America Professor F. A. Wood of Chicago has been contributing for a number of years important articles on semasiology in the Germanic languages.

Indo-European. In the general Indo-European field the most important contribution is without doubt the second revision of Brugmann's *Lehre von den Wortformen und ihrem Gebrauch*, which comprises the second volume of Brugmann and Delbruck's *Grundriss der vergleichende Grammatik der indogermanischen Sprachen* (Strassburg, 1913). Feist's *Kultur, Ausbreitung und Herkunft der Indogermanen* (Berlin, 1913) is a useful repertory, while Gauthiot's *La Fin du mot en indo-européen* (Paris, 1913) traces the evolution of the endings of Indo-European words, and Halter, *Die Indogermanen* (Jena, 1913) discusses the language and the primitive home of the Indo-Europeans from linguistic and geological data.

SANSKRIT. The contributions to the study of Sanskrit philology and literature have not been as numerous as in previous years. Probably the most finished work in this line, revealing a remarkable depth of scholarship, is the translation of Subandhu's romance, the *Vāsavadattā*, by Louis H. Gray (New York, 1913). The introduction and the lexicographical appendix, which contains words not to be found in the St. Petersburg dictionaries, are especially worthy of note. The first part of volume two of Winternitz, *Geschichte der Indischen Litteratur* (Leipzig, 1913), which is devoted to Buddhist literature, is also one of the important publications of the year. In this connection Schroeder's *Reden und Aufsätze vornehmlich über Indiens Litteratur und Kultur* (Leipzig, 1913) should also be mentioned. Other works worthy of note are Wilke's *Kultur Beziehungen zwischen Indien, Orient und Europa* (Würzburg, 1913); Fick, *Praktische Grammatik der Sanskritsprache* (3rd ed., Vienna, 1913); Pargiter, *The Purana Text of the Dynasties of the Kali Age* (Oxford, 1913); and Kennedy, *The Satakas or Wise Sayings of Bhartrihari* (Boston, 1913). The translation of Foucher's *Beginnings of Buddhist art and other essays in Indian and Central-Asian archæology* (by L. A. and F. W. Thomas, Paris) is to be published early in 1914. An excellent bibliography of one of the modern Indian dialects is contained in Blumhardt's *Supplementary Catalogue of Hindu Books in the Library of the British Museum acquired during the years 1893-1912* (London, 1913, 235 pp.).

ARMENIAN. Meillet's *Altarmenisches Elementarbuch*, published in the series of the *Indogerm. Bibliothek* (Heidelberg, 1913), is a very useful volume, stamped by the profound scholarship of this brilliant French philologist.

ALBANIAN. Among the European groups of the Indo-European family, the Albanian language has always been more or less of a puzzle. Dialect studies, such as Weigand's *Albanesische Grammatik im südgegischen Dialekt*, treating of the dialects of Durazzo, Elbassan, and Tirana (Leipzig, 1913), are helping to solve the problem. Mention should be made also of Lambertz and Pekmezi's *Lehr- und Lesebuch des Albanischen* (Vienna, 1913).

SLAVIC. Although attention has been focussed in recent years upon the numerous and widely varying Slavic dialects, which have offered so many difficult and interesting problems for the philologist, the contributions to their study during the past year have been few and of not far-reaching importance. An interesting introduction of the comparative study of the Slavic languages is contained in Mikkola's *Urslavische Grammatik* (Heidelberg, 1913), which is published in the series of the *Indogermanische Bibliothek* edited by Hirt and Streitberg. Jagic's *Entstehunasgeschichte der kirchenslavischen Sprache* (Berlin, 1913) contains a thorough explanation of the character of Old Bulgarian. Von Marnitz, *Russisches Elementarbuch mit Hinweisen auf seine Grammatik* (Leipzig, 1913), and Corovivo, *Serbokroatische Grammatik* (*Sammlung Göschen*, Berlin, 1913) are good elementary text-books.

GOTHIC, OLD AND MODERN GERMAN, DUTCH, ETC. The Germanic group received considerable attention during the past year. Among the most valuable of these studies is Kluge's *Urgermanisch. Vorgeschichte der altgermanischen Dialekte* (3rd ed., Strassburg, 1913); Wilser's *Die Germanen* (vol. i, Leipzig, 1913); and the first part of Kauffmann's *Deutsche Altertumskunde* (Munich, 1913) which treats of the period *von der Urzeit bis zur Völkerwanderung*. The first volume of the *Reallexikon der Germanischen Altertumskunde*, edited by J. Hoops, has finally been completed (Strassburg, 1911-13). It goes as far as the letter E. Schulz-Minden portrays admirably, though at times allowing his theories too much sway, the state of civilization of the primitive Germans in his *Das germanische Haus in vorgeschichtlicher Zeit* (Würzburg, 1913). Förstemann's compendious *Altdeutsches Namenbuch* (3rd ed., vol. 2, Bonn, 1913, 1766 cols.) is devoted to the origin and history of place names. Mention may also be made of Henrici's *Sprachmischung in älterer Dichtung Deutschlands* (Berlin, 1913); and the 3rd edition of Seiler's *Die Entwicklung der deutschen Kultur im Spiegel des deutschen Lehnworts* (Halle, 1913), which goes as far as the introduction of Christianity. Leyen's *Das Studium der deutschen Philologie* (Munich, 1913) and Loewe's *Germanic Philology* (English translation, 1913) are very serviceable for those desiring a general view of the subject. For the early religion, second editions of two well-known works appeared, that of Lehmann, *Die Religionen des Orients und die altgermanische Religion* (Leipzig, 1913) and Zehme, *Germanisch götter- under heldensage* (Leipzig, 1913). Finally the following work may be mentioned: Wuest, *Deutsch-lateinische Wortkunde* (Strassburg, 1913). For Gothic we have Wrede's edition of Stamm-Heyne's *Ulfilas* (Paderborn, 1913), containing the text, grammar, and vocabulary, and Rollfuss, *Wulfilas Schriftsprache: Beitrag zu Geschichte des Gotischen* (Dresden, 1913). As for Old High German, the following publications were of those that appeared: Wesle, *Die althochdeutschen Glossen des Schlettstadter Codex zu kirchlichen Schriften und ihre Verwandten* (Strassburg, 1913); Michel, *Die mit-i-abgeleiteten denominativen Verba im Altgermanischen* (Giessen dissertation, 1912); and Pongs, *Das Hildebrands Lied* (Marburg, 1913). The second edition of the first volume of Steinhausen, *Geschichte der deutschen Kultur* (Leipzig, 1913) is a noteworthy addition to scholarship. The most important publications on Middle High German are without doubt the revised edition of Lexer's *Mittelhochdeutsches Handwörterbuch* (3 vols., Leipzig) and Matthaei, *Mittelhochdeutsche Minnereden* (vol. i., Berlin, 1913). Among the more valuable modern German dialect studies are the following: Pfalz, *Die Mundart des Marchfeldes* (Vienna, 1913); Bohnenberger, *Die Mundart der deutschen Walliser im Heimattal und in den Aussenorten* (Frauenfeld, 1913); Berger, *Die Laute der Mundarten des St. Galler Rheintals* (*ibid.*) Frings, *Studien zur Dialektgeographie des Niederrheins zwischen Düsseldorf und Aachen* (Marburg, 1913); Glöckner, *Die Mundarten des Rhön* (Fulda, 1913); Lohss, *Beiträge aus dem landwirtschaftlichen Wortschatz des Schwäbisch-Württembergischen* (Heidelberg, 1913); Wrede, *Berichte und Studien über G. Wenkers Sprachatlas des Deutschen Reichs* (Marburg, 1913); and finally the *Schweizerisches Idiotikon* has now reached the seventh volume (*Stämme satz-setz*). In addition to the above studies, we may menion Fischer, *Schwabisches Wörterbuch* (Tübingen), which has reached the forty-second *Lieferung;* Fromman's magnificent edition of Schmeller's *Bayerisches Wörterbuch* (Munich, 1912, 2 vols.), originally published in 1827. This extensive and valuable list of titles serves to show the emphasis laid on dialect study by German scholars. Two works of more general interest are Sütterlin, *Werden und Wesen der Sprache* (Leipzig, 1913) and Weise, *Unsere Muttersprache; ihr Werden und ihr Wesen* (Leipzig, 1912). Other works worthy of note are Kluge, *Abriss der deutschen Wortbildungslehre* (Halle, 1913); Klipstein, *Vergleichende Syntax des deutschen, französischen und englischen* (Hannover, 1913); Kauffmann, *Deutsche Grammatik: Kurzgefasste Laut und Formenlehre des Gotischen, Alt-, Mittel- und Neu-hochdeutschen* (6th ed., Marburg); parts of the fourth, tenth, eleventh, thirteenth, fourteenth, and fifthteenth volumes of the *Deutsches Wörterbuch* (Leipzig) of the Grimms were revised during the year; and Jellinek, *Geschichte der Grammatik von den Anfängen bis auf Adelung* (Erster Halbband, 392 pp., Heidelberg, 1913), all of which testify to the great activity of German scholars.

Before passing on to the Scandinavian languages, it behooves us to call attention to two works treating of Frisian and Dutch. The first is the monumental *Woordenboek der Nederlandsche Taal,* edited by Knuttel, Jagen, Heinsius and others, of which parts of the third, seventh, and eighth volumes made their appearance; the other is Sipma, *Phonology and Grammar of Modern West Frisian* (Oxford, 1913).

Craigie's *The Icelandic Sagas* (Cambridge, 1913) contains a general résumé of all that pertains to this well-worked field, and is therefore a very useful work. Niedner's *Islands Kultur zur Wikingerzeit* (Jena, 1913) reconstructs, so to speak, the background of the sagas. To Heusler's *Altislandisches Elementarbuch* is joined the the second edition of Kahle's *Elementarbuch* (Heidelberg, 1913), thereby bringing together the two best manuals of Icelandic that have been published thus far. From the learned Noreen we have the third edition of his excellent little *Abriss der altislandischen Grammatik,* which appears in the *Sammlung kurzer Grammatiken germanischer Dialekte,* and the *Spridda Studier III* (Stockholm, 1913). Zoëga's *Concise Dictionary of Old Icelandic* (Oxford) is a fairly complete and reliable dictionary intended for beginners. Other works that should be mentioned are Van Eeden, *De Codex Trajectinus van de Snorra Edda* (Leiden, 1913); the third edition of Noreen's *Geschichte der nordischen Sprachen besonders in altnordischer Zeit* (Strassburg, 1913); and Ederschiöld, *Studier över genusväxlingen i fornvästnordiska och fornsvenska* (Göteborg, 1913). The Swedish Academy's *Ordbok öfver svenska sproket* is now about half through the letter D (Lund, 1913, 47 Heft). Jakobsen's *Etymologisk Ordbok over det norröne Sprog fraa Shetland* (Copenhagen) is a pioneer work.

ENGLISH. In English philology the most important feature of the year was the revision of several of our well-known dictionaries. Following closely upon the heels of the revised *Century Dictionary* came the *Funk and Wagnalls New Standard Dictionary of the English Language* (New York, 1913), prepared by more than three hundred and eighty specialists. It is unnecessary to discuss the merits of these two valuable works in this brief summary, for the reader is without doubt thoroughly acquainted with them. The tenth volume of Dr. Murray's *New English Dictionary on historical principles* was completed, while Craigie's *Oxford English Dictionary* (London, 1913) is almost at the end of the letter S. On Beowulf we note the following: Holthausen, *Beowulf, nebst den kleineren Denkmälern der Heldensage* (3rd ed., Heidelberg, 1913); Heyne, *Beowulf. Mit ausführlichen Glossar* (10th ed., revised by Schücking; Paderborn, 1913); and Sedgefield, *Beowulf* (Manchester, 1913), edited with introduction, notes, glossary, etc. (2nd ed.). Grein's *Sprachschatz der angelsächs. Dichter,* edited by Holthausen and Köhler, has reached the eighth *Lieferung* (Heidelberg, 1913). Other works worthy of note are Classen, *Vowel Alliteration in the Old Germanic Languages* (Manchester, 1913); Gesenius, *Grammatik der Englischen Sprache* (*Formenlehre und Syntax*) (22nd ed., Halle, 1913), a well-known text-book for German students; Brüll, *Untergegangene und veraltete Worte des Französischen im heutigen Englisch* (Halle, 1913); and Wood, *Some Parallel Formations in English* (Baltimore, 1913). The seventh volume of the Carnegie Institution's *Vulgate Version of the Arthurian Romances* contains *Le Livre d'Artus,* edited with a glossary by Sommer (Washington, 1913).

CELTIC. Celtic scholars have as usual been very active. This rich field affords such exceptional opportunities for research in philology, general linguistics, and literature that greater attention is paid to it from year to year. The second volume of Pedersen's valuable *Vergleichende Grammatik der keltischen Sprachen* (Göttingen, 1913), containing the morphology, has just been completed. This work is unfortunately so rich in details and presupposes so great a knowledge on the part of the reader that it is difficult for others than experienced philologists to use it with any degree of satisfaction. The twenty-first *Lieferung* of Holder's *Altceltischer Sprachschatz,* which consists of additions to the first volume, deserves to be noted (Leipzig, 1913). Windisch's compilation, entitled *Das keltische Brittanien bis zu Kaiser Arthur* (Leipzig, 1913), contains some debatable points, though in the main it is a most praiseworthy contribution. Kuno Meyer's essay on *Learning in Ireland in the Fifth Century and the Transmission of Letters* (Dublin, 1913) is a review of the Golden Age of Irish learning. The same author's *Sanas Cormaic, an Old Irish Glossary* (Halle, 1912) is important, being a new edition of a work originally published by Stokes in 1862. Other works on Old Irish deserving of mention are the *Anecdota from Irish MSS.* (5 parts, Halle) by Bergin, Best, Meyer, O'Keefe, and others; *Miscellany presented to*

Kuno Meyer, edited by Bergin and Marstrander (Halle, 1912), in honor of Meyer's election to the chair of Celtic at the University of Berlin; Joyce, *Origin and History of Irish Names of Places*, being a sequel to two volumes which appeared in 1869 and 1871 (London); and Pokorny's *Der Gral in Irland and die mythischen Grundlagen der Gralsage* (Vienna, 1913). Now that we possess several good grammars on Old Irish, Dottin has relieved a long-felt want for a manual of Middle Irish by his *Grammaire de l'irlandais moyen* (Paris, 1914). The Royal Irish Academy, having acquired the rights to Meyer's *Contributions to Irish Lexicography*, have announced a new dictionary to be based mainly on Old and Middle Irish material collated from printed and ms. work. They have begun to publish the letter D, intending to leave A-C to the end (Dublin). Finally, Thurneysen's *Zu Irischen Handschriften und Litteraturdenkmälern* (2 vols., Berlin, 1912-13) and K. Meyer's *Zur Keltischen Wortkunde* (Berlin, 1912-13) deserve to be mentioned. In Welsh, the most important publication is probably the historical and comparative *Welsh Grammar* of J. Morris Jones (Oxford, 1913). A very comprehensive work is Loth's translation, with introduction and notes, entitled *Les Mabinogion du Livre rouge de Hergest, avec les variantes du Livre blanc de Rhydderch* (Paris, 1913, 2 vols.). Poisson's slender volume, *L'origine celtique de la légende de Lohengrin* (Paris, 1913) is not without interest.

ROMANCE. A work that will mark a revolution not only in the study of the early literature of France, but also in that of all the primitive literatures of Europe, is Bédier's *Les Légendes épiques. Recherches sur la formation des chansons de geste* (Paris, 1913), of which the third and fourth volumes have at last appeared. In 1910 we noted in these columns that this brilliant scholar had upset all the accepted theories regarding the origin of the *Chansons de geste*. The two final volumes of this great work contain the constructive part. Herein he shows that these poems were not outgrowths of older and simpler forms, but rather the product of the life and thought of the eleventh century—one of the most glorious epochs in the history of France. Bédier's methods are now being applied to other literatures. Meyer-Lübke's *Historische Grammatik der französischen Sprache* (Heidelberg) appeared in a third revised edition. The second edition of Bloch's translation of Schwan-Behrens, *Grammaire de l'ancien français* (Leipzig, 1913), based on the ninth German edition, was another welcome manual. The third part of this edition contains some specimen texts bearing the following title: *Matériaux pour servir d'introduction à l'étude des dialectes de l'ancien français*. Bartsch's *Chrestomathie de l'ancien français (VIIIe-XVe siècles), accompagné d'une grammaire et d'un glossaire* (Leipzig, 1913), was reissued in an eleventh edition (by Wiese). Farnsworth has made an important contribution to the study of the survival of matriarchy in his dissertation, *Uncle and Nephew in the Old French Chansons de Geste* (New York, 1913). Other studies on French philology that deserve to be mentioned are Drevin, *Die franz. Sprachelemente in den latein. Urkunden des 11. und 12. Jahrhs.* (Halle Diss., 1913); Faral, *Recherches sur les sources latines des contes et romans courtois du Moyen Age* (Paris, 1913); Jorns, *Die Sprache des altfranzösischen Sachsenliedes* (Greifswald, 1913); Lecomte, *Les Francs dans le Vermandois et la Langue francisque du Ve. au XIe. siècle* (Saint-Quentin, 1913); Jeanroy, *Les Chansons de Guillaume IX, duc d'Aquitaine (1071-1127)* (Paris, 1913), which is very important for the study of the language of that period; Foerster's edition, with introduction, of *Kristian von Troyes Yvain, der Löwenritter* (Halle); the first part of Gröhler's *Ueber die Ursprung und Bedeutung der Französischen Ortsnamen* (Heidelberg, 1913), which contains the Ligurian, Iberian, Phœnician, Greek, Gaulish, and Latin place-names; Vossler, *Frankreichs Kultur im Spiegel seiner Sprachentwicklung* (Heidelberg, 1913), which comprises a brief history of the French language from the earliest times to the seventeenth century; Koschwitz, *Les plus anciens monuments de la Langue française, publiés pour les cours universitaires* (Leipzig), the first volume of which contains diplomatic texts and bibliographical notices, and the second volume the critical notes and glossary; Raynaud, *Mélanges de philologie romane* (Paris, 1913); Salverda de Grave, *L'Influence de la langue française en Hollande, d'après les mots empruntés* (Paris, 1913); Longnon, *Origines et formation de la nationalité française* (Paris); Kjellman, *La Construction de l'Infinitif dépendant d'une locution impersonnelle en français des origines au XVe siècle* (Upsala, 1913); Voretzch, *Einführung in das Studium der altfranzösischen Literatur im Anschluss an die Einführung in das Studium der altfranzösischen Sprache* (2d ed., Halle, 1913); Joret, *Les Noms de lieu d'origine non romane et la colonisation germanique et scandinave en Normandie* (Paris, 1913), etc. In later French, the most important work to appear is, in all probability, the first part of the fourth volume of Brunot's remarkable *Histoire de la Langue française* (Paris, 1913), which treats of the classic language from 1660 to 1715. For modern grammatical studies, we may note Herzog, *Historische Sprachlehre des Neufranzösischen* (Heidelberg, 1913); Guillaume, *Etudes de grammaire française logique: Le lieu du mode dans le temps, dans l'espace* (Paris, 1913), which discusses the tenses; etc. The list of French dialect studies is a very long one. The following may be noted: Brunau, *Les Limites des dialectes wallon, champenois et lorrain en Ardenne* (Paris, 1913), as well as his *Etude phonétique des patois d'Ardenne* (*ibid.*), both of which are valuable linguistic studies; Roques, *Grammaire gasconne: dialecte de l'Agenais* (Bordeaux, 1913); Thorn, *Sartre-Tailleur, étude de lexicologie et de géographie linguistique* (Leipzig, 1913); Gilliéron et Roques, *Etudes de géographie linguistique d'après l'Atlas linguistique de la France* (Paris, 1912), a very important work: Urtel, *Autour du Rhume* (Lausanne, 1913), a study of a Swiss patois; volume 1 of Gauchat and Jeanjaquet, *Bibliographie linguistique de la Suisse romande* (Neuchâtel, 1912), which treats of the extension of French and the development of *patois* literature in Switzerland, etc. Among dictionaries we may note Clédat's *Dictionnaire étymologique de la langue française* (Paris, 1912), composed for popular use.

Provençal failed to receive as much serious attention as usual during the past year. Among the more important works we note that Levy's

Prov. Supplement Wörterbuch (Leipzig, 1913) has gone as far as the word *sezer* in the seventh volume; Morf, *Vom Ursprung der provenzalische Schriftsprache* (Berlin, 1912), in which the author shows that the language of the troubadours did not originate from the Limousin dialect as stated in Ramon Vidal's *Razos de trobar* written in the fourteenth century; Leroux, *Documents limousins des archives de Bordeaux et autres villes* (Tulle, 1912); Appel, *Provenzalische Chresthomathie mit Abriss der Formenlehre und Glossar* (4th ed., Leipzig, 1912); Adams, *Word-Formation in Provençal* (New York, 1913), etc.

Italians are giving more attention to literature than to philology—a fact that explains the paucity of works touching upon this subject. The most important is probably that of Bertoni, *L'Elemento Germanico nella Lingua Italiana* (Genoa), which bears the date of 1914. Among the dictionaries are Zamaldi, *Vocabolario Etimologico Italiano* (2d ed., Città di Castello, 1913); Tommaseo, *Dizionario dei Sinonimi della Lingua Italiana* (new ed., Milan, 1913); and Parnisetti, *Piccolo Glossario Etimologico del Dialetto Alessandrino* (Alessandria, 1913). As for dialect studies, the following appeared: Buonamici, *Il Dialetto Falisco* (Imola, 1913); and Centrelli, *Fonetica del Dialetto di Toritto in Terra di Bari* (Bari, 1913). Other works deserving mention are the second volume of Trombetti, *Saggi di Glottologia Comparata* (Bologna, 1913), which discusses the numerals; Camilli, *Il Sistema Ascoliano di Grafia Fonetica* (Città di Castello, 1913); and Mari, *Vocabolario Hœpli della Lingua Italiana* (Milan, 1910-13), as yet unfinished.

In Spanish, the *Gramática Histórica de la Lengua Castellana* (Halle, 1913), of Hanssen is a greatly needed work, superior in most respects to that of Pidal (1904). Burnam's *Palæographia Iberica*, of which only the first fasciculus has thus far appeared (Paris, 1912), bids fair to be a most important work. It represents the first effort to give a complete and systematic history of writing in the Spanish peninsula. Among other works in this field we may mention Schevill, *Ovid and the Renaissance in Spain* (Univ. of California Publications, Berkeley, 1913); Fabo, *Rufino José Cuervo y la Lengua castellana* (3 vols., Bogotá, 1912); and Cejador y Franca, *Tesoro de la Lengua castellana; origen y vida del Lenguaje* (4th part, Madrid, 1913). Montoliu's *Estudis etimologics catalans* (Fasc. I, Barcelona, 1913), is an unpretentious, but useful, work devoted to the Catalan language.

The Rumanian Academy continues to publish its *Dictionarul Limbìi Române* (Bucharest, 1913), which has now reached the end of the letter B. Other works are Densusianu, *Păstoritul la popoarele romanice; insemnătatea luĭ linguistică si etnografica* (Bucharest, 1913); Tiktin, *Rumänisch-deutsches Wörterbuch* (Leipzig), of which the 20th *Lieferung* has made its appearance. For Rheto-Romance, we have Walberg, *Trascrizione fonetica di tre testi altoengadini* (Leipzig, 1913).

PHONETICS. The ninth edition of Viëtor's *Kleine Phonetik des Deutschen, Englischen und Französischen* (Leipzig, 1913), and the sixth edition of the same author's *Elemente der Phonetik des Deutschen, Englischen und Französischen* (Leipzig, 1914), as well as the eighth edition of True and Jespersen's *Spoken English* (Leipzig, 1913), were among the welcome contributions. Miss Soames' pioneer work, *Introduction to English, French, and German Phonetics* (London, 1913), passed into its third edition. The second edition of Jespersen's *Lehrbuch der Phonetik* (Berlin, 1913), and the seventh edition of Passy's *Les Sons du français* (Paris, 1913) were other important publications. Other works that deserve mention are Michaelis-Jones, *Phonetic Dictionary of the English Language* (Hanover, 1913); Raudnitzky, *Die Bell-Sweetsche Schule* (1911), a brief, but thorough, history of the English School of Phonetics; Geddes, *French Pronunciation* (New York, 1913); Scripture, *Stuttering and Lisping* (New York, 1913); Grant, *The Pronunciation of English in Scotland* (Cambridge, 1913); Viëtor, *Statik und Kinematik im englischen Lautwandel* (Marburg, 1913); Martinon, *Comment on prononce le français* (Paris, 1913); Passy, *Petite Phonétique comparée des principales langues européennes* (2d ed., Leipzig, 1912), etc. *A Tract on the Present State of English Pronunciation* (Oxford, 1913) by the English poet-laureate, Robert Bridges, attracted considerable attention to this important question.

PHILOSOPHY. NEW TENDENCIES. There has been no change in the situation of philosophy, as it has been described in the pages of the YEAR BOOK during the last few years. The traditional rationalism and idealism are being attacked from many sides, and pragmatism, intuitionism, mysticism, neo-realism, positivism, relativism, and whatever names the new modes of thought may give themselves, are making converts for their cause. A keen and widespread interest is shown in the questions at issue, not only among the specialists in philosophy, but among the scholars of other fields and by a larger intelligent public. Numerous books are appearing for and against the new movements,—especially that led by Henri Bergson,—the philosophical periodicals are full of discussions of them, and even the popular journals open their pages to expositions, appreciations, and criticisms of the new ideas. At the annual meeting of the Western Philosophical Association a large part of the papers bore upon the theories of knowledge underlying the teachings of the contending schools, while the American Philosophical Association devoted four sessions to the discussion of the problem of value, and the presidential address considered the question of "Time and the Experience of Time," a subject which plays so important a rôle in the thought of Bergson. In their joint meeting at Yale University the American Philosophical Association and the American Psychological Association chose as their subject for discussion, "The Standpoint and Method of Psychology," which was treated by Professors Creighton, F. M. Urban, Yerkes, Dewey, and Münsterberg from different angles, according to the natural-scientific or philosophical standpoints of the speakers. The Germans are at present agitating the question of the separation of the departments of philosophy and psychology in their universities—a separation which has long ago been made in many American institutions. It is being urged by the experimental psychologists, but opposed by the veteran Wundt (*Die Psychologie im Kampf ums Dasein*), who would regard the change as a misfortune for both sides, in the belief that the problems in the one field cannot be solved without a thorough understanding of those of the other. In the meanwhile, the professors of philosophy in Germany are protesting against the appointment of experimental psychologists to chairs of philosophy. All these controversies give evidence of deep-seated conviction, among many, of the incompatibility of natural science and philosophy.

It is only natural under the circumstances that questions concerning the theory of knowledge should occupy the central place in the recent literature, and that interest in ethical problems, which often form the underlying *motif* of the new movements, should be growing. For, after all, the predominant spirit of the present is one of dissatisfaction with the methods and results of a rationalistic philosophy and science that conceive the world either as a mental or a physical mechanism—the block-universe, as James called it—and make of the individual a mere cog in the universal wheel. The opposition of the anti-rationalists is nourished by many natural scientists, some of whom regard the scientific method as a mere instrument for obtaining practical results, and not as a help to the understanding of the fundamental nature of things, while others refuse to regard mechanism as the last word of science itself. Against all these anti-scientific tendencies, however, a group of neo-realists has arisen, who take up the cudgels for the scientific method and who criticise both the idealistic and the romantic philosophers, as we might call them, seeing nothing but disaster ahead of the divorce of science and philosophy.

Recent Literature on the New Schools. A book which attempts to give a picture of the present situation from the neo-realistic point of view is Perry's *Present Philosophical Tendencies;* from the camp of the pragmatists we have Caldwell's *Pragmatism and Idealism* and Marchesini's *La dottrina positiva delle idealita.* Thilly in his presidential address before the American Philosophical Association in 1912, "Romanticism and Rationalism" (*Phil. Rev.*, March, 1913), discusses the battle between the rationalists and their opponents. Delbet, *Science et realité,* opposes the mystical tendencies of the day, and insists that philosophy must follow science, basing itself particularly upon biology. Dumesnil in his *Philosophie de mon temps* and *La sophistique contemporaine* attacks all the innovators, especially Bergson, Poincaré, and the sociologist Durkheim, and seeks to vindicate orthodox Catholicism against the new aberrations. Gaultier, the idealist, offers some criticisms of recent French writers in *Comment naissent les dogmes?* Brod and Weltsch undertake what would seem to be a sensible task in their joint volume, *Anschauung und Begriff,* in attempting to clarify the relation between mysticism and rationalism by a study of perception (intuition) and conception.

Among the works which deal with James and Bergson we mention: D. L. Murray, *Pragmatism;* Muller, *De kennisleer van het anglo-amerikaansch Pragmatisme;* Ubbink, *De Pragmatisme van W. James;* Reverdin, *La notion d'expérience d'après W. James;* Vorbrodt, "W. James' Philosophie," *Zeitschrift für Philosophie,* vol. 151, no. 1; Bloch, "Der Pragmatismus von James und Schiller," same journal, vol. 152, nos. 1 and 2; Le Roy, a follower of Bergson, gives a clear exposition of the master's thought in *A New Philosophy: H. Bergson* (transl.), which with Carr's excellent little book on *Bergson* will serve as a good introduction to the study of the French philosopher; Kitchen, *Bergson for Beginners;* Dodson, *Bergson and the Modern Spirit;* Berthelot, *Un romanticisme utilitaire,* vol. ii., (Bergson); Maritain, *La philosophie bergsonienne;* Grandjean, *Une révolution dans la philosophie* (Bergson); Segond, *L'intuition bergsonienne;* Schrecker, *Bergson's Philosophie der Persönlichkeit.* Columbia University has published a *Contribution to a Bibliography of Bergson.*

Metaphysics. In the field of systematic philosophy not much of value has been offered. The most conspicuous work is that of Professor Bosanquet, "perhaps the central and most typical member" of the Neo-Hegelian school, who presents his philosophy in the second series of his Gifford Lectures, *The Value and Destiny of the Individual* (the first series was entitled *The Principle of Individuality and Value*), and also subjects the latter-day reactions against idealism to criticism. A good translation of Bergson's *Introduction to Metaphysics* by Hulne has been published, which will enable those who cannot read the original to obtain an insight into Bergson's method. In the posthumous book of Fouillée, *Lesquisse d'une interprétation du monde* and in A. Guyau's *La philosophie et la sociologie d'Alfred Fouillée,* we have two accounts which illuminate the teachings of a man who was long a distinguished champion of idealism in France. Kleinpeter, a follower of Mach, offers a natural-scientific world-view in *Der Phänomenalismus.* H. Schwarz's *Grundfragen der Weltanschauung* discusses such fundamental problems as the relation of mind and body, the freedom of the will, and the God-problem. A number of introductions to philosophy have appeared, among them Eucken's *Einführung in die Philosophie,* a sixth edition of Külpe's able book, and works by Fletcher, J. E. Russell, and Menzer. Students of philosophy will also be interested in Poincaré's *Dernières pensées* Chiappelli, *Amore, morte e immortalita;* Royce, *Problem of Christianity;* Wundt, *Reden und Aufsätze;* Bergson, Poincaré, Langevin, and other French authors, *Les idées modernes sur la constitution de la matière;* Bateson, *Problems of Genetics;* Headley, *Life and Evolution;* Frazer, *Belief in Immortality and Worship of the Dead.*

Logic and Theory of Knowledge. In view of what has been said before, it is not surprising that the publications in the field of epistemology should be numerous and varied. We mention some of the more important contributions: *Logic* (a series of papers by Windelband, Royce, Couturat, Croce, Enriques, Losskij), transl. from the German; Rickert, *Grenzen des Naturerkennens;* Meinong, *Abhandlungen zur Erkenntnistheorie und Gegenstands theorie;* Rehmke, *Anmerkungen zur Grundwissenschaft;* Driesch, *Die Logik als Aufgabe;* Aster, *Principion der Erkenntnislehre;* Ziehen, *Erkenntnistheorie;* Koppelmann, *Untersuchungen zur Logik der Gegenwart;* Eucken, *Erkennen und Leben;* Baeumker, *Anschauung und Denken;* Philip, *The Dynamic Foundation of Knowledge;* Bosanquet, *Distinction between Mind and its Objects;* Enriques, *Scienza e rationalizmo;* Herbertz, *Philosophie und die Einzelwissenschaften;* Dingler, *Grundlagen der Naturphilosophie;* Münch, *Erlebnis und Gel-*

tung; Bernays, *Ueber den transcendentalen Idealismus;* Mally, *Gegenstandstheoretische Grundlagen der Logik und Logistik;* Verweyen, *Philosophie des Möglichen;* Parker, *Metaphysics of Historical Knowledge;* Eibl, *Metaphysik und Geschichte;* Ehrlich, *Wie ist die Geschichte als Wissenschaft möglich?;* Steinmann, *Ueber den Einfluss Newtons auf die Erkenntnistheorie seiner Zeit;* Adamson, *Short History of Logic;* J. M. Baldwin, *History of Psychology* 2 vols.; Natorp, *Allgemeine Psychologie.*

ETHICS. The great interest which is manifested in social and political problems to-day is reflected in the contemporary works on ethics, many of which deal with the sociological aspects of the subject, and some of which represent a tendency of reaction against the emphasis placed on society. Of those dealing with general principles we mention: Eucken, *Ethics and Modern Thought;* Rashdall, *Ethics;* H. W. Wright, *Self-Realization;* Croce, *Philosophy of the Practical, Economic and Ethic* (transl.); Levy Bruhl, *La morale et la science des mœurs;* Gomer, *L'obligation morale raisonnée* (a protest against sociological ethics; finds the basis of moral disapproval in the consciousness of our individual value); Limentani, *Presuppositi della indagine etica* (utility and morality should not be confused; moral conduct is defined as conduct conformable to the sentiment of duty); Buchenau, *Kants Lehre vom kategorischen Imperativ;* Bayet, *La casuistique chrétienne contemporaine;* Lutoslawski, *Volonté et liberté;* Martin, *Psychologie de la volonté.* Individualism is discussed in the following: Burckhardt, *Was ist Individualismus?;* Archambault, *Essai sur l'individualisme;* Palante, *Les antinomies entre l'individu et la société;* Pagano, *L'individuo nell' etica;* Palante, *Pessimism et individualisme.*

HISTORY OF ETHICS, MORAL EVOLUTION, ETC. Janet, *Histoire de la science politique dans ses rapports avec la morale,* 4th ed.; Myers, *History as Past Ethics*; Worms, *Le progrès;* Weber, *Le rythme du progrès;* Blease, *Short History of English Liberalism;* Nevinson, *The Growth of Freedom;* J. B. Bury, *History of the Freedom of Thought;* F. Harrison, *The Positive Evolution of Religion: Its Moral and Social Reaction.*

SOCIAL PHILOSOPHY. Tönnies, *Gemeinschaft und Gesellschaft;* Coffin, *The Socialized Conscience;* H. Jones, *Social Power;* Parmelee, *Science of Human Behavior;* Murdoch, *Economics as a Basis of Living Ethics;* Friedrichs, *Klassiche Philosophie und Wirthschaftswissenschaft;* Hobhouse, Rasdall, and others, *Property: its Duties and Rights;* Macdonald, *Syndicalism;* Krapotkin, *La science moderne et l'anarchie;* Cresson, *L'espèce et son serviteur; Year-Book of Social Progress;* Troeltsch, *Die Soziallehren der christlischen Kirchen;* Lorin, *Les bases économiques de la justice internationale.*

A conference on legal and social philosophy, attended by teachers of philosophy and of law, was held at Columbia University and at the College of the City of New York. Papers were read on "The Conception of Social Welfare" (Felix Adler), "Criteria of Social Ends" (Tufts), "The Content of Social Justice" (Patten), "The Social Sciences as the Basis of Legal Education" (Lewis), "The Philosophy of Law in America' (R. Pound). Abstracts of these and other papers are published in the *International Journal of Ethics,* October, 1913.

MORAL EDUCATION. MacCunn, *Making of Character,* 2d. ed.; Boutroux, *Education and Ethics* (transl.); F. J. Gould. *Moral Instruction: Its Theory and Practice;* Sneath and Hedges, *Moral Training in the School and Home;* Sharp, *Success: A Course in Moral Instruction for the High School;* Börner, *Charakterbildung der Kinder;* Dyserinck, *Mémoires sur l'education morale,* and *Compte rendu du deuxième Congrès international d'éducation morale.*

HISTORY OF PHILOSOPHY. *Allgemeine Geschichte der Philosophie,* by many German scholars, 2d. ed.; Messer, *Geschichte der Philosophie;* Schwarz, *Der Gottesgedanke in der Philosophie; Beiträge zur Geschichte der Philosophie,* volume in honor of Professor Baeumker; Deussen, *System of the Vedanta,* translated; Deussen, *Philosophie der Bibel;* Drews, *Der Monismus in Altertum;* Burnet, *History of Greek Philosophy;* Picavet, *Essais sur l'histoire générale et comparée des théologies et des philosophies mediévales;* Neumark, *Geschichte der jüdischen Philosophie im Mittelealter,* Appendix: Falckenberg, *Geschichte der neuern Philosophie,* 7th ed.; Siegel, *Geschichte der deutschen Naturphilosophie;* Külpe, *Philosophy of the Present in Germany,* translated; Feigel, *Der französische Neokriticismus.* Löwenheim, *Die Wissenschaft Demokrits;* Meier, *Sokrates und sein Werk;* Field, *Socrates and Plato;* A. M. Adam, *Plato: Moral and Political Ideals;* Hackforth, *Authorship of Platonic Epistles;* Mauxion, *Physique aristotélienne;* L. Cooper, *Aristotle on the Art of Poetry* (amplified version); Michelitsch, *Thomasschriften;* Wicksteed, *Dante and Aquinas;* Belmont, *Duns Scotus;* Sabrie, *De l'humanisme au rationalisme: Pierre Charron;* Croce, *Vico* (transl.); Barth, *Descartes' Begründung der Erkenntnis;* Cochin, *Descartes;* Gilson, *La Liberté chez Descartes et la théologie;* Jüngst, *Verhältniss von Philosophie und Theologie bei den Cartesianern;* G. Richter, *Spinozas philosophische Terminologie;* Bellange, *Spinoza et la philosophie moderne;* Köhler, *Begriff der Repräsentation bei Leibniz;* Didier, *Hume;* Dedieu, *Montesquieu;* Séverac, *Condorcet;* Fonsegrive, *Rousseau;* Sakmann, *Rousseau;* A. D. Lindsay, *Kant;* Simmel, *Kant;* Sentroul, *Kant et Aristote;* Heinemann, *Aufbau von Kants Kritik der reinen Vernunft;* Bund, *Kant als Philosoph des Katholizismus;* Miller, *Moral Action and Moral Law in Kant;* Miller, *Kant's Doctrine of Freedom;* Macmillan, *Crowning Phase of Critical Philosophy;* Sydow, *Kant-Kommentar;* Simmel, *Goethe;* M. Wundt, *Goethes Wilhelm Meister;* Wesselsky, *Forberg und Kant;* Croce, *Saggio sullo Hegel;* Roques, *Hegel, sa vie et ses œuvres;* Archambault, *Hegel;* G. Gentile, *La riforma della dialettica hegeliana;* Siegmund-Schultze, *Schleiermachers Psychologie;* Dupuy, *Positivisme d'A. Comte;* Hubert, *Comte;* Bottinelli, *Cournot;* Petersen, *Die Philosophie Trenelenburgs;* M. Wentscher, *Lotze;* E. Bergmann, *Philosophie Guyaus;* R. M. Meyer, *Nietzsche;* Windrath, *Nietzches geistige Entwicklung;* More, *Nietzsche;* Raab, *Philosophie des R. Avenarius;* Rashdall, *The Metaphysic of F. H. Bradley;* Passkönig, *Psychologie Wundts;* Lamarque, *Ribot;* H. Naville, *E. Naville;* Memelet, *Le relativisme philosophique chez Simmel;* Hadley, *Some Influences in Modern Thought.*

DICTIONARIES, TRANSLATIONS, NEW EDITIONS, ETC. Hastings, *Encyclopædia of Religion and*

Ethics; Schmidt, *Philosophisches Wörterbuch* (pocket edition); transl. of Aristotle (Smith and Ross) and Descartes (Haldane and Ross); new editions of Philo (by Cohn), of Kant (by Prussian Academy, Cassirer, Vörlander, Gross), of Schelling, Hegel, Schleiermacher, Herbart, Schopenhauer, Lotze, Renouvier, Bolzano. *Lettres inédites de Locke;* Royer-Collard, *Fragments philosophiques;* Dammköhler, *Briefwechsel Schellings mit Niethammer;* G. Lasson, *Neue Briefe Hegels;* Gruber, *Briefwechsel Schopenhauers mit Lindner. Hegel-Archiv*, ed. by G. Lasson, devoted to the study of Hegel's philosophy. *Jahrbücher der Philosophie* gives a critical survey of contemporary philosophy. Ruge, *Philosophie der Gegenwart*, vol. iii., gives bibliography of philosophy for the year 1911.

PHIPPS PSYCHIATRIC CLINIC. See INSANITY.

PHOSPHATE ROCK. The total quantity of phosphate rock mined in 1912 was 3,190,587 long tons, compared with 3,182,415 long tons in 1911. A marketed production of 1912 was 2,973,332 long tons, valued at $11,675,774. This was a slight decrease over the marketed production of 1911. The largest quantity was produced in Florida, where 9,461,297 long tons were mined in 1912. Tennessee produced 1,640,476 long tons, South Carolina 524,760, and various Western States 49,241. During 1912 there were exported 1,206,520 long tons of phosphate rock, valued at $8,996,456, a decrease in both quantity and value as compared with 1911.

IMPORTS OF FERTILIZER MATERIALS. The total quantity of these materials imported to the United States in 1912 was 999,338 long tons, valued at $889,090. This was a slight decrease from the imports of 1911. Of the fertilizers imported, the largest quantity was kainit, 7,511,976 tons, brought into the United States. See FERTILIZERS.

PHOTOGRAPHY. In the year 1913, progress was made in telephotography, particularly the transmission of colored photographs electrically from one place to another. Experiments were also rife in the taking of photographs from kites and other aerial devices for use in time of war. These resulted in the production by inventors of some ingenious contrivances such as kite and rocket cameras. One experimenter secured pictures by attaching a camera furnished with a special kind of suspension to a steel piano wire carried up by means of a kite of the kind used for meteorological observation; but vibration of the wire caused by wind and difficulties in operating the shutter of the camera made the resulting negatives somewhat blurred and unreliable. Several inventors perfected rocket cameras, one of which was said to have been in successful use by the Bulgars in the Balkan war for taking photographs of a Turkish camp at night. The camera, attached to the head of a specially constructed rocket, and shot into the air to a height of 2000 feet or more, is automatically held in the proper position for exposure by means of an ingeniously constructed gyroscope attached to it, while a timing device releases the shutter at the proper moment. As soon as this has taken place, a parachute is caused to open and thus permit the safe descent of the camera to the ground at a moderate speed, and its recovery for subsequent use. A similar device was adopted by the German army. Some idea of the possibilities of the method may be derived from the consideration of the fact that the stick of the rocket is 15 to 16 feet long, and that it can carry a camera of sufficient size to use an eight-by ten-inch plate.

In telephotography, or the transmission of photographs from one place to another by electricity, the Marino system of color telephotography was considerably improved. It consisted in illuminating the colored plate at the sending station by a powerful arc light whose radiation was allowed to pass through regularly spaced perforations in a sheet of paper moved at uniform rate in front of the plate between it and the arc. The light passing through the plate is refracted by a prism, and the spectrum so produced is received upon a number of strips of selenium placed in a shunt circuit of an arc lamp situated in front of and close to the receiving plate. The receiving circuit has three wave detectors in three resonant circuits, each with the frequency of one set of waves emitted by the Poulsen arcs, which influence three receiving arcs, in front of which colored filters are placed corresponding to the three groups of selenium cells. It was said that this method gave highly satisfactory results.

In the attempt to photograph objects under water some good results were obtained with a camera manipulated by an operator placed in a cylindrical shaft provided with plate glass windows, through which the light from the objects to be photographed may reach the camera. In some experiments in the waters of Hampton Roads, Virginia, a source of light consisting of a number of incandescent electric lamps aggregating 1000 candle power was placed under water near the point, or objects, to be photographed, and successful negatives were obtained at depths as great as 30 feet; while at a depth of 15 feet and with an exposure of from one-tenth to 1/75 of a second, and with daylight illumination only, satisfactory results were secured and photographs of fish, marine plants, etc., were made.

An ingenious device was tried for night photography to a limited extent for kinetescope projection, as well as for other optical purposes. It was called by Dussaud, its inventor, an apparatus for producing "cold light." His machine consists principally of a wheel on the circumference of which a number of Tungsten lamps are placed, connected, each one in turn, to a source of electricity. By the rotation of the wheel each lamp, at a particular point on the wheel, is in turn illuminated and cut off from the supply, the speed of rotation of the wheel making it possible to light any one lamp for an exceedingly short interval, and the succeeding lamps furnishing, in turn, a source of illumination. There is produced on the retina of the eye of the observer the impression of a continuous luminous source. This being so, Dussaud operates his machine at such a rate that the period of darkness for any lamp is more than twice the duration of its brightness, and it is therefore possible, he finds, to supply a much higher voltage than that at which the lamp is rated. Furthermore, the short period of time during which the lamp is luminous allows the development of a very small amount of heat, measurable, of course, yet so small as to be unobjectionable, hence the title, "cold light." Tests have shown that with from 50 to 160 watts applied to 16 lamps ranging from 25 to 80 candle power, there was obtained a brightness equal to from 250 to 800 candle power for several hours continuously. It will be at once understood that such an arrangement, in connection with a moving picture machine, allows the latter to be run at any desired speed, and even to be stopped, without danger of igniting the film; and as regards the intrinsic brightness of the source of light, it has been shown that pictures projected on a screen 15 feet square in a perfectly satisfactory manner, involve the consumption of only 150 watts of energy.

The activities of the U. S. government in the prosecution of corporations were directed against certain makers of photographic supplies; and in this connection, the Eastman Kodak Company of Rochester, New York, was made the defendant in a suit under the Sherman law, the basis of some of the charges being unjust control exercised over retail dealers in regard to the sale of Eastman goods. Dealers selling these articles were, in some cases, it is alleged, forbidden in their contracts to handle those made by other manufacturers. This applied to films, papers, and certain chemical preparations. While the suit had not been definitely abandoned, it was generallv understood that an amicable arrangement had been effected between the representatives of the attorney-general and the officers of the company, whereby the latter agreed to conform to the conditions imposed to the former in adjusting their relations to retail dealers. The importance of the suit in the photographic supply industry was of special note, as it involved questions of restraints of trade and the suppression of competition. The great competition for business and the questionable means for securing the same that had been known to prevail for some time past in this line of manufacture aroused general interest in this matter. In spite of the difficulties alleged, many independent concerns seemed to have been able to exist, and owing to the enormous demand for goods of this sort would probably enter upon an era of great prosperity with the removal of alleged abuses.

In recent years the work of amateurs has been increasingly good. At the 1913 exhibition of the Royal Photographic Society in London, the judges noted a marked improvement over the work of previous years in the pictures shown, both in choice of subject and in composition; and in this connection it is not too much to say that recent improvements in the quality of materials and supplies employed, and advanced methods of manipulation suggested in many cases by manufacturers, have, in part, contributed to this result.

In the domain of moving pictures an ingenious cinematograph hand camera was perfected for special use, such as photographing wild animals in situations where the ordinary moving picture camera would be inconvenient to either transport or operate. This hand camera contained the usual type of apparatus for taking moving pictures, and the motive power for operating the film was furnished by compressed air stored in four cylinders contained in the camera box. Three hundred feet of film may be used in this camera, and the air compressed and stored in the cylinders by means of an ordinary pneumatic tire pump is sufficient to run off two reels each of this length. As the dimensions of the entire outfit are 12 by 8½ by 6½ inches, and its weight only 14 pounds, it is evident that a compact, powerful instrument has been added to the equipment of naturalists and explorers. See CHEMISTRY, INDUSTRIAL, *Color Photography;* and MOVING PICTURES.

PHYSICS. In a growing science, such as physics, the work of each year can be divided roughly into three or four general divisions. First there are a certain number of investigations which are more or less routine in character. Their purpose is to test some of the details of fairly well established theories or to supply data to fill in certain gaps in our knowledge of this or that class of phenomena. The amount of this work is increasing in volume every year, especially along the lines of radio-activity and discharge through gases. Such work furnishes very valuable material and is very important. At the same time, the results are often such as to seem almost common-place and uninteresting.

There is a second class of research in which the investigator is working in a rather narrow —sometimes almost unknown—field. From time to time results are published but, since only a few men are working along this line, the results of this work are perhaps not appreciated since they do not seem to have a bearing on the work which is absorbing the attention of the majority of physicists. For example, for a number of years Guthe and several of his students have been studying the elastic properties and behavior of wires. They have contributed very largely to our knowledge of elastic fatigue, elastic hysteresis, etc., but their results have usually attracted much less attention than they deserve.

Somewhat similar to the first class of work mentioned are many of the contributions to theoretical and mathematical physics which appear from time to time. In such subjects as relativity and quantum theory, new methods of attack are constantly being tried and new deductions from the more or less well established theories are constantly being made. Important as some of these contributions are, from their very nature it is almost impossible to give any adequate review of the results which they represent.

Sometimes, though not always, by any means, the year's work is marked by some particularly brilliant discovery or by some exceptional achievement. Often this will open up a new line of investigation which will engage the attention of many investigators, and extremely rapid progress will be made. For a few years before the period now considered this last class of work had seemed to be lacking. Reference to the previous YEAR BOOKS will show this. However, in the review of 1912 passing reference was made to the work on the passage of X-rays through crystals, preliminary reports of which had just appeared when the article was written. It is no exaggeration to say that this work has aroused the most lively interest throughout the scientific world since it promises an insight into both the nature of the X-rays and the structure of crystals. Several groups of investigators have taken up this work and probably there is no other branch of physical research in which so much has been published during the past twelve months. On account of the wide-spread interest in this work, an attempt will be made in this article to give a fairly comprehensive survey of it. This may result in the crowding out of material in other lines which is not less important than the work on X-rays, though at present hardly as interesting.

X-rays and Crystals. The original work of Laue, Friedrich, and Knipping (1912) consisted in passing a very narrow beam of X-rays through a section of a crystal behind which was placed a photographic plate. After an exposure of several hours, it was found upon developing the plate that the central spot—corresponding to the original beam of rays—was surrounded by a number of dark spots of more or less intensity, arranged in regular order. Laue showed mathematically that the arrangement of these spots corresponded to the interference pattern that would be formed by a diffraction grating of three dimensions. This "grating" was assumed to be formed by the regular arrangement of the molecules or atoms of the crystalline substance.

To explain the regularity of form of crystalline substances, it has long been assumed that the atoms or molecules or groups of molecules are arranged at the vertices of what has been called a "space lattice." To take a very simple case, consider a substance which crystallizes in the cubic system. The crystal is thought of as built up of elementary cubes. To make this idea concrete, take the kindergarten exercise of making a cube by sticking toothpicks at right angles to each other into peas. If this process is continued by joining one cube to another, each pea forms a corner of *eight* adjacent cubes. This is a rough picture of the space lattice suggested by the writers on crystallography. Atoms, molecules, or groups of molecules correspond to the peas at the corners of the cubes. These are held in position by their mutual actions and reactions on each other. Of course in the case of substances which do not crystallize in the cubic system, the element of the space lattice is assumed to be some other regular geometric solid.

The first work of Laue and his associates was done with a crystal or zinc blende, a substance which crystallizes in the cubic system. As noted above, it was shown that the results obtained photographically could be explained by assuming that the X-rays were electromagnetic waves of very short wave length which were diffracted by the atoms or molecules at the vertices of the space lattice. From the arrangement of these "diffraction" spots, Laue concluded that the energy of the incident beam of X-rays was concentrated chiefly in five definite wave lengths.

For several years Professor W. H. Bragg had advocated a corpuscular theory of the X-rays, which assumed that they were composed of neutral doublets. According to this theory, diffraction would be impossible. Immediately upon the publication of Laue's work, Bragg suggested an explanation of the "diffraction" pattern based upon reflection.

To return to the model of the space lattice outlined in a previous paragraph, if a series of parallel planes are passed through the figure so as to include *all* of the edges of *one side* of a cube, each plane will be separated from the one above or the one below by a distance equal to the edge of the elementary cube. Each of these planes will contain a number of peas arranged in squares. A series of parallel planes can also be passed through the lattice such that each plane cuts diagonally across a series of cubes, taking in, for example, the nearer edge of the lower face of a given cube and the farther edge of the upper face of the same cube. The adjacent planes of this series would be nearer together than those in the first series of planes, but the peas would be arranged in rectangles instead of in squares, the width of the rectangles being the same as the side of the squares in the first series. In a similar manner other series of parallel planes can be chosen which pass through the lattice at regular intervals and each plane will include a certain number of peas arranged in regular order. The number of peas per unit area for any given plane will depend upon the way in which it cuts the space lattice. The series described first contains the maximum number per unit area; that is, it is the "richest" in peas.

Bragg's explanation of Laue's results was based upon the idea of planes "rich in molecules." He suggested that such planes would act as reflecting surfaces and he showed theoretically that patterns similar to those observed by Laue could be formed by reflection at such series of planes. Later experimental evidence has led Bragg to give up his theory of "neutral doublets" and to adopt a more or less modified form of the wave theory. However, his suggestion of reflection by series of planes has led to some very important theoretical and experimental work. Some of the best of this has been done by his son, W. L. Bragg.

In order to study the phenomena of reflection, experiments were made in which the beam of X-rays was allowed to fall upon the section of crystal at grazing incidence. Instead of using a photographic plate, the intensities of the reflected rays were studied by the ionizing effect that they produced. The apparatus as arranged was similar to a spectrometer. The incident beam of X-rays was passed through holes in a series of lead plates. This corresponded to the collimator. The reflecting crystal was placed in the position of the prism, and the ionization chamber for detecting the reflected rays was mounted in the place of the telescope. This method has been used chiefly by Bragg and the English investigators, while the men of the Continent have, in the main, used the photographic method.

The interpretations suggested for the various experimental results and some of the conclusions drawn from them are extremely interesting. An outline of these will be given, but the method of arriving at these conclusions often involves very tedious mathematical analysis which is beyond the scope of this review. Bragg has shown that the fact that the reflected (or transmitted) rays are of certain definite wave lengths may be explained without assuming that the energy of the incident rays is concentrated in these wave lengths. The explanation is similar to that given for the "musical echo," i.e., the production of a definite tone by the reflection of a single sharp noise by a series of equally spaced parallel planes arranged like the risers in a staircase.

The distance between two points at which the reflected (or diffracted) rays reinforce each other depends upon two factors, viz., the wave length of the rays, and the distances between the particles that make up the space lattice. If a value can be assigned to one of these factors, the other can be calculated from the experimental data. By assuming that the particles making up the space lattice are single atoms of the elements constituting the substance studied, a value can be assigned to the distance between the particles. This calculation is based upon the molecular weight of the substance, its density, and the number of atoms in a cubic centimeter of hydrogen under standard conditions. Of these assumptions, the wave length of the X-rays has been found to be of the order of magnitude of 1×10^{-8} cm., that is about one one-thousandth of the wave length of yellow (sodium) light.

From a study of the patterns formed by crystals of substances of similar composition, W. L. Bragg has drawn some very suggestive inferences concerning the arrangement of the atoms in the crystal and the roles of the heavy and light atoms in the process of reflection at the planes "rich in atoms." It would be natural to expect that the patterns formed by potassium chloride, sodium chloride, potassium bromide, etc., would be similar in character, since it is highly probable that their crystalline structure is similar. Experiment showed, however, that the patterns formed by potassium chloride differ from those formed by potassium iodide or potassium bromide. Bragg showed that the potassium chloride pattern can be explained by the simple cubical space lattice while the patterns for potassium bromide and potassium iodide require that not only shall there be a "diffracting point" at each corner of the cube, but there must also be a "diffracting point" at the centre of each face of the cube. The explanation which Bragg has suggested for this seeming discrepancy is very simple. The experiments made on the absorption of the X-rays by various elements indicate that it is the atomic weight rather than any other specific property that determines the effectiveness of an element as an absorber. To quote from a recent paper of Bragg's (*Proceedings of the Royal Society*, series A, vol. 89, no. A-610, September 22, 1913, pp. 248-276):

"It is reasonable, therefore, to assume provisionally that the weight of an atom in the main defines its effectiveness as a diffracting centre, and that two atoms of equal weight are equally effective. In the case of potassium chloride the atoms of potassium and chlorine, of atomic weight 39 and 35.5 respectively, are sufficiently close in atomic weight to act as identical diffracting centres. . . . In potassium bromide an iodide one atom preponderates so greatly over the other in atomic weight that the diffracting system consists practically of atoms of one kind only, and the pattern can again be assigned to a simple space lattice, but one which is of a different nature to that of potassium chloride. Yet the atoms of alkaline metal and halogen have precisely the same arrangement in all these cases.

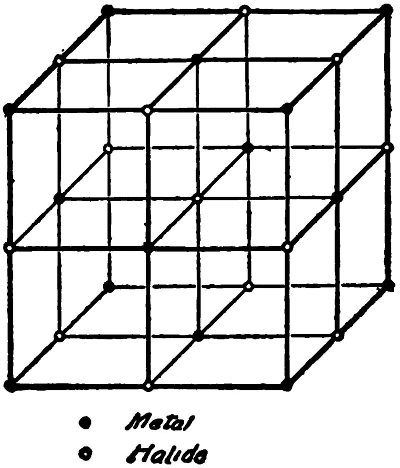
"Let us distinguish between two kinds of diffracting points by calling them black and white. Then the points must be arranged in such a way that:

"1. There are equal numbers of black and white.

"2. The arrangement of points black and white taken altogether is that of the first (the simple) cubic space lattice.

"The arrangement of blacks alone or of whites alone is that of the third (the face-centred) cubic space lattice."

A glance at the accompanying figure, which is adapted from Bragg's article, will help to make this idea clear.



To quote Bragg again: "The space lattice formed by the whites is the same as that formed by the blacks, being in each case the face-centred cube. If black and white centres becomes identical, as in potassium chloride, the diffracting lattice becomes the simple cubic one."

Further experiments by Bragg have shown that we must consider that each point in the above figure is a single atom, rather than a group of atoms. This gives us at once a method of estimating the distance between the atoms. For sodium chloride it has been calculated that the distance from one (black) atom to the next (white) atom is 2.8×10^{-8} cm. or approximately one one-hundredth-millionth of an inch. While further work may show that this theory is not correct in all its details, it is very suggestive and its simplicity certainly is in its favor.

Of course in the case of some substances, it is more difficult to analyze the patterns, and the theory is correspondingly more involved. An example of this is given in the following quotation from an article by W. H. and W. L. Bragg on "The Structure of the Diamond" (*Proceedings of Royal Society*, series A, vol. 89, no. A-610, September 22, 1913, pp. 277-91): "The carbon atoms are not arranged on a space lattice, but may be regarded as situated at the points of two interpenetrating face-centred space lattices. These lattices are so situated in relation to each other that, calling them A and B, each point of lattice B is surrounded symmetrically by four points of lattice A, arranged tetrahedron-wise and *vice versa*."

Patterns similar to those given by hard X-rays have been obtained by Shaw when γ rays fall on mica at grazing incidence. He has estimated that the wave length of the γ rays is between ten and one hundred times smaller than that of the hardest X-rays.

From the amount of investigation at present in progress along these lines, we may expect many important developments in the near future.

CHARACTERISTIC X-RAYS. Previous work by Barkla and Sadler and their associates (see YEAR BOOK for 1910-1912) has shown that when X-rays fall on a metal plate, the plate becomes a source of X-rays which are characteristic of the metal. Under certain circumstances, this characteristic radiation has been observed when cathode rays themselves strike an anticathode. Barkla and Sadler had explained this as an indirect effect due to the ordinary production of X-rays at the anticathode and the reaction of these X-rays on the material of the anticathode itself. The results of some recent experiments by Beatty contradict this theory. He showed first that the quantity of this characteristic radiation was about ten times as great as could be accounted for by Barkla and Sadler's theory. By letting cathode rays of several definite velocities fall upon copper and aluminum anticathodes and anticathodes of copper covered with a layer of aluminum of sufficient thickness to cut off the cathode rays, he succeeded in measuring the indirect effect suggested by Barkla and Sadler and also in showing that the characteristic radiation was produced directly. According to his results, the production of both the "indirect" and the "direct" characteristic radiation disappears when the speed of the cathode rays falls below 6.25×10^9 cm. per second. The "direct" effect is apparently much greater than the "indirect" effect but apparently neither effect has any influence on the "regular" or ordinary production of the X-rays at the anticathode. This point is especially interesting as indicating that each class of rays is due to an atomic mechanism which is independent of that which produces the other.

In a paper published in 1913 Whiddington described experiments from which he concludes that in order to excite the fluorescent radiation characteristic of an element of atomic weight A, the cathode rays must be moving with a speed of at least $A \times 10^8$ cm. per second. Since the atomic weight of copper is 63, this result agrees well with that of Beatty.

Gray has shown that the primary γ rays from radium E excite the characteristic X-radiation in several metals such as silver, tin, barium, etc. This point is of interest as further evidence of the similarity in nature of the X-rays and the γ rays.

General Radio-activity and Discharge Through Gases. In the 1912 Year Book some account was given of Rutherford's theory of the structure of the atom. Early in 1913 Bohr published a theoretical paper dealing with the decrease in velocity of α and β particles in passing through matter. According to the theory which he developed, the decrease in velocity of α rays on passing through the material can be estimated from the frequencies of the electrons in the atoms of the absorbing material as calculated from the theory of dispersion. In general his theoretical results are in accord with the experimental data, especially in the case of the lighter elements. His theory also seems to account for the form of the relations between the thickness of the material and the velocity of the β or cathode rays traversing it. Taking the work on α rays in connection with Rutherford's theory of the atom, Beatty concludes that the hydrogen atom contains only *one* electron outside of the central positive nucleus and that the helium atom contains two such electrons.

Rutherford and Robinson have recently made careful determinations of the heating effects due to the α, β and γ rays from radium and its disintegration products. Their results are summarized in the table which is taken from their paper.

Substance	Heating effect in gram-calories per hour corresponding to one gram of radium			
	α-rays	β-rays	γ-rays	Total
Radium	25.1	...	...	25.1
Emanation	28.6	...	...	28.6
Radium A.......	30.5	...	...	30.5
Radium B..... Radium C.....	39.4	4.7	6.4	50.5
Totals	123.6	4.7	6.4	134.7

To make these results a little more concrete, the results in the table show that in three-quarters of an hour the total heat in all forms of rays given off from one gram of radium in equilibrium with its disintegration products is enough to raise the temperature of one gram of water from freezing temperature to boiling temperature, while in a little less than five and one-half hours, the heat given off is sufficient to convert one gram of ice at the melting point into steam at the boiling point.

The energy necessary to ionize an atom has been discussed theoretically by Beatty. At the same time Franck and Hertz have made direct measurements upon some of the elements. The agreement between the experimental and the theoretical results is not good in all cases, but the general conclusion seems to be warranted that the energy required to ionize an atom decreases as the atomic weight increases. (Mercury seems to be a possible exception to this statement, but the data at present are quite unreliable.) Bergen Davis has suggested that if this is true, it may furnish an explanation of the fact that we have no elements of atomic weight greater than about 240. That is, a heavier atom would require no energy for ionization and hence would disintegrate into an element of lower atomic weight. Since the radio-active elements have the highest atomic weights, this view is certainly very suggestive.

Another paper which presents a rather novel point of view is one by F. C. Brown. In this he argues from geological data that sodium may belong to one of the families of radio-active elements.

Thermions. As noted in the last Year Book, the theories of O. W. Richardson on the emission of positive ions and electrons by hot bodies have been attacked by several investigators. In particular it has been suggested that the emission of electrons is a secondary effect due to the emission of molecules of gas previously absorbed by the heated electrode or to the disintegration of the electrode itself.

In many respects the work of the past year has supported the views of Richardson. In 1904 Owen and Halsall published results seeming to show that at temperatures above 1000° C. at least 5 per cent. of the negative thermionic current from platinum was carried by heavy ions, though below this temperature the current was due almost entirely to the emission of electrons. During the past year they have repeated this work and extended it to palladium and iridium. Their conclusions now are that even above 1000° C. the carriers of the thermionic current are almost entirely electrons. The ratio of heavy ions to electrons is certainly less than one to two thousand and probably is less than one to ten thousand.

According to Richardson's theory there should be a cooling effect due to the emission of electrons or ions by a hot body. This had been observed by several investigators but their observations indicated a value greater than that given by Richardson's theory. Cooke and Richardson have discussed this point and have called attention to certain corrections which bring these results into agreement with the theoretical values. They have also made direct experiments on osmium, the results of which are in good agreement with theory.

In a more recent paper Richardson has given the details of an investigation of the emission of electrons by heated tungsten. The tungsten filament was heated by the passage of a current. Especial precautions were taken to eliminate the disturbing effects of residual gas, etc. The results showed that the emission of electrons could not be ascribed to the evolution of gas by the filament since the number of electrons emitted was more than six million times as great as the number of molecules of gas given off. It was also shown that the emission of electrons could not be due to "chemical action or some other cause depending upon impacts between gas molecules and the filaments." In one series of experiments the mass of the electrons emitted was approximately three times the loss in mass of the tungsten filament, thus disposing of the argument that the electrons were the result of some process involving the consumption of tungsten. To quote from Richardson's article (*Philosophical Magazine*, August, 1913, pp. 345-350): "It thus follows that the emission of electrons from hot tungsten, which there is no reason for not regarding as exhibiting this phenomenon in typical form, is not a chemical but a physical process. This conclusion does not exclude the possibility that, under other circumstances, electrons may be emitted from metals under the influence of various chemical reagents; . . . but it does involve a denial of the thesis that the emission is invariably caused by processes involving changes of material composition."

The final paragraph of Richardson's article brings out a very interesting point. "The experiments also show that the electrons are not created either out of the tungsten or out of the surrounding gas. It follows that they flow into the tungsten from outside points of the circuit. The experiments therefore furnish a direct experimental proof of the electron theory of conduction in metals."

The December, 1913, number of the *Physical Review* contains two contributions from the Research Laboratory of the General Electric Company which give very strong support to Richardson's theory. In one of these, Langmuir discusses exhaustively the effect of residual gases and of "space-charge," and gives the results of an elaborate series of tests on tungsten filament. His paper also contains a critical discussion of several previous investigations including the work of Pring and Parker. (See 1912 YEAR BOOK.) He brings out both theoretically and experimentally the important point that "the mutual repulsion of electrons (space charge) in a space devoid of positive ions, limits the current that flows from a hot cathode to a cold anode." The presence of residual gas usually aids in the production of positive ions to such an extent as to greatly reduce the space charge. Besides several other important conclusions, Langmuir states that "the normal thermionic current from tungsten in a '*perfect*' vacuum follows Richardson's equation accurately."

The other article to which reference was made is by Coolidge and describes a new form of very powerful X-ray tube. It is mentioned in this connection because "it differs in principle from the ordinary type in that the discharge current is purely thermionic in character." The cathode is heated electrically, thus liberating the negative electrons, while the vacuum is "so high that the ordinary tube would carry no current even on 100,000 volts." Besides its interest as a most unexpected application of the thermionic emission of electrons, the development of this new tube promises much for the future of X-ray work since its performance is much more regular and controllable than that of the ordinary X-ray bulb.

THEORETICAL PHYSICS. Among the more important papers which have appeared, the following are especially worthy of mention: E. B. Wilson and Gilbert N. Lewis have given a comprehensive discussion on the "Space-Time Manifold of Relativity," including an application of non-Euclidean geometry of four dimensions to mechanics and electro-mechanics. (See *American Academy Proceedings*, vol. 48, no. 11, pp. 389-506.) Recent experiments of Michelson have shown that within an error of two per cent., the velocity of light reflected from a moving mirror is independent of the velocity of the mirror. Assuming that the effect is actually zero, he has indicated a method by which differential measurements giving an accuracy of one part in one hundred thousand might be made on the velocity of light coming from the two limbs of the sun. This would furnish a direct experimental test of one of the postulates of the relativity theory. (See *Astrophysical Journal*, vol. 37, pp. 190-193.)

PIEROLA, NICOLAS DE. A Peruvian statesman, died June 24, 1913. He was born at Camana in 1840. While still a youth he entered the army, but resigned his commission in 1862. He then went into politics, and six years later became minister of finance. While in this office he negotiated contracts for the construction of many Peruvian railways, and bonds aggregating $150,000,000 were floated in Europe. For a time his plans were successful, but financial difficulties followed, and Pierola was impeached. He was acquitted and continued as minister of finance until 1872. Later he led the revolts against the government as represented by President Manuel Cardo, who was assassinated in 1888, and President Mariano Ignicio Prado, who was president during the war between Peru and Chile. Both these attempted revolutions failed. Pierola took an active part in the war against Chile, and on the fall of Lima in 1881 he fled into the interior. On the conclusion of peace between the two countries, he again became prominent in politics, and was elected president.

PIG IRON. See IRON AND STEEL.

PITCHBLENDE. See RADIUM.

PITTSBURGH, UNIVERSITY OF. An institution for higher education, founded at Pittsburgh in 1787. The total number of students enrolled in the several departments in the autumn of 1913 was 2514. The faculty numbered 295. The university received more than $500,000 for the Mellen Institute from A. W. and R. B. Mellen of Pittsburgh. The productive funds of the university amount to about $500,000, and the annual income to about $360,000, including about $160,000 appropriated by the State. The library contains about 10,000 volumes.

PITUITARY GLAND. See Epilepsy.

PLAGUE. The advisory committee for plague investigation in India issued its seventh report in 1913. With the exception of a single epidemic in 1905-6 it was stated that plague had never gained a foothold in the city of Madras, although the city had a population of half a million, with crowded native quarters. This was attributed to the fact that for several years Madras had undertaken a campaign against rats, a reward of a half a cent being offered for each rat brought in. The number of rats destroyed since February, 1906, was 1,220,686. Since the commission closed its inquiry the destruction of rats had been continued by the Bombay city health department, and the animals examined for plague. The results showed how the rat epidemic always preceded a human epidemic. See Vital Statistics.

PLANETS. See Astronomy.

PLANT BREEDING. See Botany and Horticulture under heading so entitled.

PLATINUM. The high price of platinum in 1912 encouraged prospecting in the United States, but did not greatly increase the production of crude metal, which amounted to 721 ounces as compared with 628 ounces in 1911. With the exception of a small yield in Wyoming, the entire domestic production came from California and Oregon. The greater part of the California platinum was obtained as a by-product in gold dredging. In Oregon the quantity recovered declined to 39 ounces.

The supply of platinum in the United States comes chiefly from the unmanufactured and manufactured platinum imported indirectly from Russia. In addition, 45,280 ounces of platinum sand were imported into the United States in 1912. By the usual estimate of 80 per cent. fine metal, this would yield 36,224 ounces of fine platinum. Another considerable source of platinum supply comes from the refining of imported and domestic gold and copper bullion. From this source, 1300 ounces were obtained in 1912. In all, the refined platinum produced in domestic refineries amounted to approximately 38,029 fine ounces, valued at $1,732,221, as compared with 29,140 fine ounces obtained in 1911. The price per troy ounce in 1912 averaged $45.50.

The world's production of platinum in 1912 was 314,715 troy ounces. Of this, about 300,000 came from Russia; 12,000 from Columbia.

Other platinum metals are paladium and iridium. The average price for paladium in 1912 was $55 per troy ounce. There were imported 4967 ounces, valued at $213,397 in 1912. Iridium is the highest-priced metal of the platinum group. In 1912 it averaged $65 per ounce.

The platinum market in 1913, according to the *Engineering and Mining Journal*, was inclined toward lower prices, owing largely to a smaller demand by the electric and jewelry trades. The automobile industry uses the paladium and iridium platinum for sparking points, and of this there is a considerable consumption. The average price for platinum in New York was $44.88 in 1913; paladium about $45, and iridium $75.

PLATT, James Perry. An American jurist, died January 26, 1913. He was born in Towanda, Pa., in 1851; graduated from Yale College in 1873; studied law at the Yale Law School; and began practice at Meriden, Conn., with his father, Senator Orville H. Platt. In 1878 he was elected a member of the State House of Representatives, and from 1879-93 was city attorney of Meriden. He was appointed United States district judge for the district of Connecticut in 1902.

PLATTSBURG, Battle of, Celebration. See Expositions.

PLAYGROUNDS, Public. Growth of Movement. In April, 1906, a group of people, which included some of the most prominent educators and social workers in the country, met at Washington, and formed the nucleus of an organization which has since developed into the Playground and Recreation Society of America. At that time forty-one cities already had public playgrounds in operation. The first, in the form of sand gardens, had been in existence in Boston since 1882. The first out-of-door gymnasium is said to have been equipped at the Round Hill School, Northampton, Mass., in 1885. In 1895 Philadelphia took up the work in a comprehensive way, and was followed by New York and Pittsburgh in 1896, and Chicago in 1898, and other cities were rapidly added to the list, so that the organized effort which began with the formation of the Playground and Recreation Society of America, met a public need, already widely realized.

The first Play Congress was held in Chicago in 1907, and such a meeting has been held each succeeding year, the Play Congress for 1913 being held at Richmond, Va. In 1907, also, *The Playground*, a monthly magazine devoted exclusively to play interests, was established. The same year, 1907, in the State of New Jersey, the first playground legislation was passed.

Present Status. The recreation census for the year ending November 1, 1913, completed by the Playground and Recreation Association is summed up in the accompanying table:

	Number of Cities	
Playground and Recreation Centres:		
Under paid supervision	342	
Under volunteer supervision	22	
Under no supervision	59	
School playgrounds	149	
		572
Work Started:		
Recreation superintendents appointed.	3	
Playground associations and commissions organized	14	
Committees appointed	8	
Land secured	26	
Money raised	8	
Bond issues secured	2	
Municipal appropriations and bond issues requested	3	
		64

In addition, thirty-one cities reported that steps were being taken to arouse interest and that the movement was being agitated. In the

324 cities having paid supervision there were 2402 playgrounds and recreation centres, with 6318 play leaders, and a total expenditure of $5,700,224 for the year. In addition to the sum just named bonds to the amount of $2,358,000 were authorized by 20 cities.

Ownership and Management. In the early years public playgrounds were operated, if not owned, at private expense, but the work is rapidly being assumed by municipalities and paid for as part of the city budget. In 1913, the work was supported by public funds in 111 cities and partially so in 115 more. In some cities the management is assumed by city departments already in existence, as the park department or school board; in other cities some private organizations, as an improvement association or woman's club, nas attempted the administration of the work; in about 32 cities the work has been deemed worthy of the formation of a new department, known as the playground or recreation commission or department. This last-named will doubtless be the practice in an increasing number of cities from year to year.

Leadership. It has been the universal experience that to be effective the playground or recreation centre must have responsible and competent leadership. In fact those playgrounds that have been maintained—there are at least 300 of them—without it have been so unsuccessful as to form a definite danger of "auto-vaccination against playgrounds," for a playground without a director is as useless as a school without a teacher, and is dangerous. To meet the demand for trained leadership, training classes were maintained in 1913 in 59 cities, 35 of these cities reported 2638 students. Of the 6318 play leaders employed, 3856 were women. This is a profession that is bound to attract young men and women who have a talent for leadership, knowledge of children and of out-of-door sports, and a desire for a very real kind of social service. Social, as well as athletic gifts, are essential for story-telling and folk dances are favorite forms of recreation.

PLURAL VOTING BILL. See Great Britain.

POETRY. See French Literature; German Literature; Italian Literature; Literature, English and American; Scandinavian Literature; Slavic Literature; and Spanish Literature.

POINCARE, Raymond. President of the French Republic. Elected January 17, 1913. He was born at Bar-le-Duc, in the department of the Meuse, in 1860, his father an inspector of the bridges and roads department of the public service. He took an interest in politics and was elected deputy at the age of twenty-six. He at once became known as a thorough student of public affairs. At the age of thirty-three he was made minister of instruction, and in 1894 was given the portfolio of finance. Here he made his mark in handling the weighty problems of the budget. It is said that he would without doubt have risen to the premiership had he not shown an indifference in parliamentary reform and a strong preference for the bar. He rose rapidly in the profession of the law, and soon was in the front rank. After his services as minister of finance, he retired from political life, until, in 1912, he was appointed to be reporter to the senate committee on the Franco-German Accord. He was made premier in 1912. In addition to his political and legal interests M. Poincaré devoted considerable time to literary subjects. (See also France, *History*.) Among his books are *Idées contemporaines; Etudes et figures politiques;* and *Causes littéraires et artistiques.*

POLAND. See Russia.

POLAR EXPLORATION. Arctic. The most important work in the Arctic during the year was the discovery of new land north of Siberia. Four years ago the Russian government built and commissioned two small icebreakers, the *Taimyr* and the *Vaigatch*, to make surveys along the north coast of Siberia. While engaged in this work, in the summer of 1913, Captain B. A. Vilkitsky succeeded in pushing the *Taimyr* to the north of the Chelyuskin Peninsula and found a way to the open sea. Thirty miles northeast of Cape Chelyuskin, the expedition, on September 2, discovered an island that was free of ice on its east side. It was seven miles wide at its eastern extremity. After surveying the accessible part of the shore, the expedition skirted the edge of the compact ice and at daybreak on September 3, thirty nautical miles from the eastern edge of the newly discovered island, sighted the towering heights of an unknown land. Seven miles off shore, depths of only 700 feet were found. The land proved to be of volcanic origin containing extensive glaciers. On September 4, a party landed at 80° 4′ N. lat., 97° 12′ E. long., raised the Russian flag and declared the land annexed to his imperial majesty's dominions. The island was named Nicholas II. Land. Skirting the coast to the northwest, the expedition went on to 81° N. lat., 96° E. long., where the explorers found unbroken ice on all sides and were compelled to put back. They had followed the coast to the northwest for about 200 statute miles.

The party was thus unable to determine how much further to the north the land extended. Its presence seems to account for some hitherto unexplained peculiarities of the Kara Sea. That sea is often found almost choked with ice. This fact together with the condition of its currents and the salinity of its waters has long suggested the theory that some very substantial obstacle stood between it and the Arctic Ocean. The new land, in fact, with Novaya Zemlia and the continental shores, almost encloses the Kara Sea.

An important advance in the exploration of the vast interior of Greenland has been made by three traverses of the inland ice sheet. Knud Rasmussen, with the Dane, Freuchen, and two Eskimos of Smith Sound, started on April 6, 1912, across the inland ice from Inglefield Gulf, West Greenland, to Denmark Fiord and Independence Bay, on the east coast, to look for traces of Einar Mikkelsen. The party made good progress with 53 dogs to haul their four sledges. The highest part of the route was 7300 feet above sea level. The distance across the ice cap, from the starting point to Denmark Fiord was 764 miles. Just to the north of Peary's "Navy Cliff" the party looked in vain for the Peary Channel which was supposed to form the northern boundary of Greenland. Instead of the channel, they found an extensive ice-free upland abounding in game. They returned to Inglefield Gulf on August 8, but news of their work did not reach civilization till the summer of 1913.

The second party was that of the Swiss savant, Dr. de Quervain, who led a scientific expedition of six men across the ice cap from Disko Bay, on the west coast, to Angmagsalik on the east coast. After crossing the black rocks of the marginal zone, the march over the ice began at an altitude of 1970 feet. At first the water holes and crevasses in the ice caused much trouble, and after reaching the snow the party nearly met disaster on a snow-covered lake on July 13. The highest point was reached at 8200 feet; and four days later a hitherto unknown mountain range was discovered near the east coast where the journey ended on July 20.

Captain Koch of Denmark, crossed Greenland at its widest about midway between the routes of Rasmussen and De Quervain. His expedition spent the winter of 1912-13 near the east coast of the island in the latitude of Koldewey Island. The final start on the 700-mile march to the west coast was made on April 20, 1913. As the center of Greenland was approached the altitude was between 8000 and 9000 feet and the greatest elevation, provisionally estimated at 9500 to 9800 feet, was reached in longitude 43° W., latitude 74° 30′ N., or nearer the west than the east coast.

These expeditions, particularly the last two, will supply many new facts on the configuration and meterological conditions of the ice-filled interior of Greenland. The non-existence of Peary Channel from sea to sea has been proven, for the ill-fated Mylius Erichsen discovered this fact which was later verified by Rasmussen. Dr. Quervain's route supplies much information concerning the ice sheet to the north of Nansen's route in 1888; and Koch throws the first light on the vast central area. Koch found the snow bunting and tracks of foxes at the very centre of the ice sheet. When the full results of these expeditions are published we may expect large additions to our knowledge of the interior of Greenland.

The government of Canada, in February, assumed the entire financial responsibility for the new expedition which Mr. Vilhjahlmur Stefansson proposed to lead into the Arctic. His plan was to have two main bases, one on Prince Patrick Island in the north and the other on the North American mainland near Coronation Gulf. He expected to spend three or four years in an intensive study of the archæology and ethnology of the Eskimos, together with the zoölogy and geology of the whole region from Alaska to Coronation Gulf; also to map the unexplored coasts of Victoria and Prince Patrick Islands and, by off-shore journeys to the north and east, determine by soundings the extent of the continental shelf and discover new lands if they existed in that part of the Arctic. He collected a scientific staff of eleven men besides himself and Dr. R. M. Anderson, the biologist, including four men detailed by the Canadian Geological Survey, George Malloch, stratigrapher, J. J. O'Neill, mining geologist, and Kenneth Chipman and J. R. Cox, topographers, who who were to study and map the copper deposits near the lower Coppermine River and on Victoria Island; James Murray, oceanographer, Fritz Johansen, who was to study Arctic fish, Henri Beauchamp and Dr. G. Jenness, anthropologists, W. L McKinlay, terrestrial magnetism, and Dr. A. Forbes Mackay, surgeon. Most of the crew was selected from the American whaling fleet.

The barkentine steam whaler, *Karluk*, with the main expedition and many of the supplies, sailed early in June from Esquimalt, B. C., under command of Captain Bartlett who gave such efficient service to Peary's enterprises. The three smaller vessels, the steam schooner *Mary Sachs*, the steam whaling bark *Belvidere*, and the gasoline boat *Alaska* followed soon after. The *Belvidere* was with the fleet only to carry supplies to the Alaskan coast.

Unfortunately, the ice conditions, north of Bering Strait, proved to be unprecedented. All the vessels were at the mercy of the ice drift. The *Alaska* and the *Mary Sachs* finally reached Collinson Point, where they were reported to be spending the winter of 1913-14 in safety. The *Belvidere*, also, was safely moored. The *Karluk*, heavily beset in the ice, drifted past Point Barrow on August 8, became free on the same day, but was beset again on August 12, fifteen miles off shore, and drifted slowly back west till September 10. She seemed then to be fast in the ice for the winter, at 150° 7′ W. longitude.

Stefansson, believing that her position was assured till spring, went ashore on September 20, with four men, two Eskimos, two sledges, and twelve dogs to hunt for a supply of fresh meat. Two days later, under the impulse of a strong northeast gale, the ice broke up again, the *Karluk* went adrift and as she was hidden by a fog, her direction could not be determined though the explorer thought it probable that she was taken west. Aboard her were twenty-five men, including Captain Bartlett, H. Beauchamp, W. T. McKinlay, Dr. A. F. Mackay, George Malloch, James Murray, and five Eskimos. While the uncertainty as to her fortunes caused great anxiety, it may be said that she was well provisioned for three years. Stefansson decided later to undertake the exploration of the Mackenzie Delta and to make a sledge journey north in February and March to establish the edge of the continental shelf west of the Parry Archipelago. If the *Karluk* does not return he will try to carry out most of his original programme with his two remaining vessels. Dr. Anderson, with the *Alaska* and the *Mary Sachs*, was wintering at Collinson Point.

The Crocker Land expedition sailed on July 2, from Brooklyn for Smith Sound on the steam whaler *Diana*. The members of the scientific staff were Donald B. MacMillan, leader and ethnologist, W. Elmer Ekblaw, geologist and botanist, Ensign Fitzhugh Green, U. S. N., engineer and physicist, Morris C. Tanquary, zoölogist, Dr. H. J. Hunt, surgeon, and Jerome Lee Allen, wireless operator. The expedition was to pass through Smith Sound and establish winter quarters on Flagler Bay, Ellesmere Island. It was to start westward for the supposed Crocker Land in February, 1914. Peary gave this name to an appearance of land which he saw far out to the west when he was completing the survey of the northwest coast of Grant Land in 1906. It was the purpose of MacMillan and his men to explore this land, if it were found to exist, to seek for more lands in the northern part of the Parry Archipelago, to study the geology of the northern parts of Ellesmere Island and, possibly, to cross North Greenland on the inland ice.

Finely equipped in all respects for three years of Arctic work, and with an excellent scientific staff, the prospects of the party were somewhat overcast by misfortunes at the outset. Their steamer grounded on the rocks off Barge Point, Labrador, and as she could not pursue the journey, the services of the *Erik* were procured, and the cargo was transferred. This occasioned so much delay that Smith Sound, when reached, was found to be choked with pack ice, so that the party was compelled to spend the winter of 1913-14 at Etah, on the Greenland coast, some eighty miles from Flagler Bay in Ellesmere Island from which it had been expected to advance supply depots across the island to facilitate the summer work. The achievement during the first year may therefore fall short of the work as planned.

Mr. Harry V. Radford of New York, and his assistant, T. George Street, of Ottawa, are reported to have been killed in a quarrel with Eskimos at Bathurst Inlet, northern Canada, on or about June 5, 1912. He had been engaged for three years in studying the wood bison and other large fauna in Canada and had done some geographical work. He wrote, a little before his death, that he had nearly completed his map of Bathurst Inlet on Canada's Arctic coast.

The Schröder-Stranz expedition (German) which left home in 1912 for pioneer exploration in northeastern Spitzbergen has added another melancholy chapter to Arctic exploration. The two search parties that were sent out for their relief, returned with seven of the fifteen members, eight having perished in Spitzbergen. The expedition had accomplished nothing.

In the fall Captain Amundsen's ship, the *Fram*, started for the Pacific *via* Cape Horn, to take his party on board at San Francisco for the four or five years' drift in the ice of the Arctic Ocean. The personnel of the expedition will be largely composed of members of Amundsen's Antarctic party.

ANTARCTIC. The tragedy that overtook Captain R. F. Scott's South Pole party was reported in the YEAR BOOK for 1912. Scott's records showed that his determination of the position of the South Pole differed but a half mile from that of Amundsen. The scientific work accomplished by the entire expedition, on the mainland to the northwest of winter quarters, in the region of McMurdo Sound and in the south, was of the highest quality. The expedition will rank as among the most fruitful of polar enterprises.

The two detachments of Dr. Mawson's expedition to the eastern coast of the Antarctic continent (Wilkes Land) have produced charts giving a good delineation of over 1000 miles of this part of the mainland coast and have obtained many geological specimens. Along the more southerly part of this coast, where Frank Wild and his party worked, the rock foundations were determined along nearly the whole coast explored, so that earlier errors as to the position of the coast line, due to the mistaking for it of pack ice edges, have been avoided. Wild surveyed all the coast line to the point reached by the German expedition of 1902. An altitude of 4500 feet was reached fifty miles inland, and most of the sledge traveling was at altitudes of 2000 to 3000 feet. On March 14 the Wild party returned to Australia on Mawson's ship the *Aurora*, and Mawson's section will be brought home in the present Antarctic summer. An interesting feature is that Dr. Mawson has been able to keep in wireless communication with the civilized world by means of his station in Adelie Land and those at Marquarie I. and Tasmania.

It is announced that Dr. Felix König, of Austria, will head an expedition on the German polar steamer *Deutschland*, which will sail in May, 1914, to survey the unknown stretch of coast in North Antarctica between Prince Regent Luitpold Land, discovered by the Filchner expedition of 1912, and Coats Land, discovered by Bruce in 1901. The expedition will also study the relations between the Antarctic continent and South America and carry out other scientific work.

POLIOMYELITIS (INFANTILE SPINAL PARALYSIS). The investigation of this disease during the last year has been in the direction of finding out the method of transmission. The stable fly (*Stomoxys calcitrans*) was for a time thought to be an agent in spreading the disease, possible, by means of laboratory experiment, to convey the disease from animal to animal by means of this fly. Sawyer, Herms, and Frost undertook numerous experiments and investigations which ended negatively, as regards the stable fly. It appeared, according to Flexner, that the human carrier was the principal agent. He and his co-workers cited one instance in which the virus of poliomyelitis was isolated from the mucous membrane of healthy human adults, the parents of a child suffering from an acute attack of epidemic poliomyelitis. Washings from the nasopharnyx of these adults were injected into a laboratory animal which in due course exhibited the classical symptoms of paralysis; and body fluids of this animal produced poliomyelitis in a second animal when they were injected into it. Flexner believed that these results show without a doubt that the virus of the disease may be carried in the mucous membrane of the upper respiratory tract of healthy individuals and that the latter act as disseminators. Kling reported extensive researches on the virus and mode of transmission of infantile spinal paralysis. He found that 78 per cent. of the monkeys contracted the disease after inoculation with water in which organs and mucous membranes from poliomyelitis cadavers had been rinsed. All the animals inoculated with spinal cord emulsion died of poliomyelitis. The virus was present constantly in the secretions from the nose and throat and in the intestinal contents of acute poliomyelitis patients, also in those with light, abortive cases of the disease, and further, in numbers of healthy contacts. As a rule, the virus soon loses its virulence, so that isolation need not be kept up for more than two weeks; although the virus was found in the nasopharynx up to seven months in a few of the cases examined, and also in the abortive cases and healthy contacts. He thought it probable that each case and each abortive case is surrounded with a number of carriers, but serious epidemics do not result because the persons exposed are not susceptible. It seemed to be the rule that a region where a disease has once been epidemic, is spared further inroads of the disease later, indicating that a large part of the population has become immunized by having had the disease in an attenuated form. This rule was particularly evident in the large cities where the people are exposed to so many diseases and contract them in a mild, clinically not appreciable, form, during the course of a mild epidemic. Then, when the disease returns at some later period in a more malignant form, the population is protected. In rural districts there is not the same opportunity to acquire immunity, and when an epidemic occurs it attacks large numbers of non-immunes and is liable to run an exceptionally severe course.

POLITICAL ECONOMY. A considerable number of articles will be found elsewhere in this volume treating various problems and movements of economic interest not covered by this one. A general survey of business conditions during the year is given under Financial Review. In the article Labor will be found references to the various topics treating different aspects of the labor problem. The article Banks and Banking includes statistics of all banks in the United States and history for banking and currency reform, and is supplemented by articles on the several kinds of banking institutions, and by that entitled Agricultural Credit. Other articles related to the general subject of economics are: Bureau of Corporations, Carnegie Institution of Washington, *Department of Economics and Sociology;* Insurance; Parcel Post; Old-Age Pensions; Prices; Social Economics, and subjects there referred to, as Tariff; Taxation; Trusts; and United States Steel Corporation.

The American Economic Association. The twenty-sixth annual meeting of this body was held at Minneapolis, Minn., December 27-30, in connection with the annual meeting of the American Sociological Society. (See Sociology.) The first topic on the programme was "The Control of Public Service Corporations," on which a paper was read by Professor John H. Gray of the University of Minnesota, and discussed by a number of other experts. There followed an address of President Small of the American Sociological Society, on "A Vision of Social Efficiency," and that of President David Kinley of the Economic Association, on "The Renewed Extension of Government Control of Economical Life." Much attention was given to the "Theory of the Making of Railway Rates," on which a paper was read by Dr. B. H. Meyer of the Interstate Commerce Commission, and discussed by a number of others, including Professor Josef Schumpeter of the University of Graz, Austria. There were held two round-table discussions on "The Rural Organization Service," led by Professor T. N. Carver of Harvard University, and director of the rural organization service of the United States Department of Agriculture, and on "The Theory of Rent and American Agriculture," led by Professor H. C. Taylor of the University of Wisconsin. At the fifth session Mr. John Graham Brooks of Cambridge, Mass., presented a paper on "Syndicalism," which was discussed by Professor Karl F. Theodor Rathgen of the Kolonialinstitut of Hamburg, Germany, Mr. Roger W. Babson of Wellesley Hills, Mass., and several university professors. At the final session Professor Willard C. Hotchkiss of Northwestern University discussed "Recent Trust Decisions and Business." This same topic was commented upon by numerous distinguished economists.

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POLITICAL PARTIES IN 1913. The history of the Democratic party during the year is that of the administration and needs no special treatment. The broken wings of the Republican party which, in 1912, went to form the Progressive and the regular Republican parties both were active in 1913 in the elections which took place in that year.

There was much discussion of the possibility of a reunion of the two parties, and this found more favor among the Republican leaders than among the Progressive. Men prominent in the Progressive party, especially Mr. Roosevelt, declared strongly against any compromise with the aim of reunion. In the elections held in November and in other State elections held during the year, the tendency seemed to be for those who had voted for the Progressive party in 1912 to return to the regular Republican wing. This was shown in elections held in Maine, Massachusetts, New York, and other States. For a discussion of the State elections in 1913 see paragraph *Elections of November, 1913*, in the article UNITED STATES, and the historical sections of the State articles. There is given below a brief summary of the more important events in the history of the Republican and Progressive parties in 1913.

REPUBLICAN PARTY. At an address delivered by President Taft in New York City on January 4, more than 1400 persons prominent in the Republican party were present. In this address Mr. Taft defended the policy of his administration and defined the issues of the election of 1912 as he understood them. After calling to mind several of the most important acts of his administration, he commented on the break in the party which resulted in his defeat as follows: "Let us invite these Republicans who left us under an impulse that calmer consideration shows to have been unwise, to return and stand again shoulder to shoulder with us in this critical time in our country's history. Let us invite from the ranks of our opponents, the Democrats, the many who love the Constitution and the blessings it has conferred on our people to unite with us in its defense. It must be a campaign of education among the common people, against the poison of class hatred, the fantasies of unbalanced enthusiasts, the sophistry of demagogic promises, and the wiles of false friends of humanity." Pleas for reunion with the Progressives were urged in the same month by Chase S. Osborn, Republican, of Michigan, and Frank A. Munsey, one of the most prominent of the Progressive leaders. The plan of Mr. Munsey found no support from Mr. Roosevelt. Early in May the executive committee of the party began to make plans for a reorganization, and an informal convention was held in Chicago. Plans for reorganization considered did not include amalgamation with the Progressive party. Governor Hadley of Missouri, who was one of the supporters of Mr. Roosevelt in the convention in 1912, but refused, on the nomination of Mr. Taft, to leave the Republican party, urged the purging of the party. He advocated a presidential primary and the holding of a reform convention. At the meeting of the executive committee of the national committee plans were made for a meeting of the general committee. Several prominent senators, including Senator Jones of Washington and Senator Cummins of Iowa, urged Mr. Hilles, chairman of the national committee, to hold a convention in 1914. On October 5 the executive committee held a meeting to discuss the advisability of such action. A meeting of the national committee was held in Washington early in December, and after the presentation of many proposals for reform in the method of conducting conventions, the committee adopted certain modifications in the rules of the party governing procedure at national conventions. The most important change related to representation. This was in response to the conditions which placed an undue power in the hands of the delegates from Southern States, in which the party as a party hardly exists. As the Republican party in the South consists almost entirely of Republican office holders, the South in public conventions has been a "solid South" in support of the condidates of the administration. It was this state of affairs which brought about the strongest protests against the renomination of Mr. Taft in 1912. In accordance with the change adopted by the committee, there will probably be 90 fewer delegates in the national Republican convention in 1916 than there were in 1912. Of the losses, 78 will fall upon the South. Alabama will lose 9 delegates; Arkansas 3, Florida 4, Georgia 10, Louisiana 7, Mississippi 8, North Carolina 3, South Carolina 7, Tennessee 3, Texas 15, and Virginia 9. Hawaii will lose 4 of its 6 delegates. Quite as significant as this change was the committee's action in recognizing the primary laws of the various States and taking away from the committee itself the power to make up the temporary roll of the convention in so far as delegates selected from the primaries held under State law are concerned. The committee decided against a special convention to be held in 1914.

Progressive Party. As noted above, the plan of union with the Republican party urged by Frank A. Munsey in January, 1913, was opposed by Mr. Roosevelt. On January 24 headquarters were organized in New York and Washington. At a banquet of the National Progressive Club held on February 12, Mr. Roosevelt was named as presidential candidate in 1916. A meeting of members of the party was held in Philadelphia on March 12. Mr. Roosevelt was the chief speaker. He said among other things:

"Our party is not in power; it is not in office; but it is our duty to formulate public opinion and prepare it so that it shall insist on action along the lines we indicate.

"We recognize that party organization and machinery, while imperatively necessary, are of use only if treated as a practical means of securing applied idealism.

"The Progressive party has been founded primarily to render social and industrial service. This means, of course, that there must be clean politics. Rotten politics in the end mean rotten business and rotten conditions generally.

"The most original form of work which we are undertaking is the work of the Progressive Service. The Progressive Service branch of our party activity is devoted to social research in organized, efficient shape, and is endeavoring to correlate it with the acts of law-making bodies and the needs of the public.

"We wish the business man to prosper. We hold that the right type of business man is the man who makes money by serving others, and if the service is great we wish the reward to be great. We draw the line on conduct, not on size. We do not intend to destroy big business where it is useful to the people; we intend to keep it, but we intend so to supervise and control it that we can be sure that it will be useful.

"We wish to see wages go up, if dividends go up. If the man at the top makes a fortune and the man at the bottom only a bare living, we hold that there is something wrong, and we do not intend to rest content until we right that wrong."

At this meeting $12,000 was collected in money and pledges for the campaign fund of the party. The national committee met in the latter part of May. In a caucus vote a decision against amalgamation with the Republicans was made. Plans were made for the celebration of the first anniversary of the party in Chicago, Ill. The committee endorsed the constitutional amendment providing for the election of senators by direct vote of the people. A convention was held at Newport, R. I., beginning July 2. Addresses were made by Mr. Roosevelt, Oscar S. Straus, Gifford Pinchot, and Herbert Knox Smith. The first anniversary of the founding of the party was celebrated in Chicago on August 30. President Roosevelt and other leaders made addresses. On October 3 President Roosevelt spoke at a dinner which was held previous to his departure for South America. He received a great ovation and speeches were made by Albert J. Beveridge, Gifford Pinchot, and others. Members of the national, executive, and congressional committees of the party held a joint meeting on November 8. Plans of amalgamating with the Republicans were repudiated by Gifford Pinchot in a statement made on December 6.

POLO. By winning two of the most spectacular polo matches ever played the United States retained possession of the International Challenge Cup. It is noteworthy, too, that the "four" who won the cup at Hurlingham, England, in 1909, were the players who successfully defended the trophy in 1913. These men were Harry Payne Whitney, Lawrence Waterbury, J. M. Waterbury, and Devereux Milburn. The British team composed Captain Leslie St. C. Cheape, Captain A. Noel Edwards, Captain R. Gerald Ritson, Captain Vivian N. Lockett, and F. M. Freake, who took Captain Edwards's place in the second match. The Duke of Westminster was the principal financial backer of the British team, which was better equipped for the matches than ever before. Forty ponies, the pick of the empire, were taken to the United States for use in the contests. In previous games the United States players had had a distinct advantage by reason of the fact that their ponies were speedier and better conditioned. This state of affairs, however, did not exist in 1913. In the practice matches the Americans showed surprisingly poor form and as a result a week before the date set for the first contest those in charge announced that the four to defend the cup would be Louis E. Stoddard, No. 1; Devereux Milburn, No. 2; Foxhall P. Keene, No. 3; and Malcolm Stevenson, back. Greatly to the surprise of polo experts, H. P. Whitney and the two Waterburys were not included in the line-up. An accident to Keene upset the plans made, and four days before the matches Whitney and the rest of the "big four" were named to defend the trophy.

In the first game the Americans started out with an assault that overwhelmed their opponents, quickly running up a score of six goals to Great Britain's one. Then the visitors rallied and met the attack with daring and brilliant play. During the game, J. M. Waterbury had two of the fingers of his right hand broken by a mallet. He was obliged to retire from the game, Louis E. Stoddard taking his place. The match finally ended with the Americans victors by a score of 5½ to 3. An unusual feature of this contest was the fact that the British players escaped any penalties.

F. M. Freake replaced Captain Edwards in the second struggle, while Stoddard again played for the injured Waterbury. The British players gave a masterly exhibition in this game, riding like demons and wielding their mallets with deadly effect. Stoddard was the American star, scoring four goals, while Captain Cheape rolled up the same number for his side. The penalties charged were the deciding factor in the outcome, the British losing ¾ of a goal and the Americans ½ of a goal. The final score was United States 4½, Great Britain 4¼.

Cooperstown won the American open championship for the second successive year, defeating Point Judith in the final match by 7 goals to 2¼. Cooperstown also captured the senior championship title by defeating Meadow

Brook 8½ to 4¾, and the junior championship by defeating Great Neck 10¼ to 7. In the Westbury challenge cup matches, Great Neck defeated the Meadow Brook Hunters 9¼ to 8¾. The Newport championships were won by the Cooperstown Leopards, who defeated the Myopia Perroquets 5½ to 1¾.

POOL. See Billiards.

POPULATION STATISTICS. See Vital Statistics.

PORTO RICO. Population. The population of Porto Rico in 1910 was 1,118,012, compared with 953,233 in 1900. The largest cities with their populations in 1910 are as follows: San Juan, 48,716; Ponce, 25,005; Mayaguez, 16,563; Caguas, 10,354; Arecibo, 9612; and Aguadilla 6315.

Agriculture. The most important industries of the island are those related to agriculture. Increasing attention has been given within the past two years to the development of agriculture, and for this purpose the insular board of commissioners of agriculture has coöperated with the agencies of the Federal government in private enterprises in distributing information as to the most effective means to be adopted and methods to be followed in working out the various problems of cultivation, preservation, treatment, and marketing of crops under local conditions. Improvements resulted from this are already noticeable throughout the island, both in the increased acreage under tillage and thoroughness in cultivation as well as in the better quality and greater quantity of the resulting products. One of the most important objects sought is the development of intensive farming, in which the rural inhabitants shall generally acquire proprietary interests and thus, participating in the activities, prosperity, and obligations of the country, break away from the condition of peonage in which through ancient system and tradition they have been held for centuries. The board of commissioners has a competent corps of scientists actively engaged in various investigations. Research work for the purpose of discovering methods of combating pests and diseases of cane and other crops has been conducted during 1913 throughout the island.

The most important crop is sugar. While the shipments of sugar during 1913 were 16,000 tons greater than during the preceding year, reaching a total of 333,000 tons, the average price received was $16 less a ton, reducing the total value of sugar shipments approximately $5,000,000 from that of 1912. The decreased valuation resulted from the depression in the sugar industry. The tobacco industry has been increasingly important in recent years. The growth of the industry is shown by the fact that the export of cigars in 1913 was 165,524,000, while in 1901 it was less than one-tenth this quantity. The output in 1913 was valued at $5,800,162. The unmanufactured tobacco produced in 1913 was 6,952,467 pounds, valued at $3,006,854. Less than one-fourth of the tobacco crop is shipped in the leaf, the remainder being shipped in manufactured form. The growing of coffee continues to be an industry of increasing importance in the island. The coffee exported to foreign countries in 1913 amounted to 49,571 pounds valued at $8,378,346. The export of coffee to the United States amounted to 773,626 pounds, valued at $132,970. The growing of coffee is being extended throughout the works of the island, the soil and climate of which are successfully adapted to the production of the highest grades of coffee to be found in the world. The figures above indicate that Porto Rican coffee has found a much wider market outside the United States than within it. Great progress has been made in the growing of fruits of various kinds. The most important of these are oranges, pineapples, and grape fruit. In 1913 353,633 boxes of oranges, 360,232 crates of pineapples, and 216,216 boxes of grape fruit were exported to the United States. Much attention is also given to the raising of cocoanuts. The industries mentioned comprise the leading agricultural activities of the island.

Commerce. The value of exports and imports for the fiscal year 1912-13 aggregated $86,003,627, or a decrease of $6,628,259 from the corresponding total of 1911-12. Imports were valued at $36,900,062 and exports at $49,103,565, a decrease in the value of the former of $6,026,411, and of the latter, $601,848. A decrease in the value of exports to the United States is partially offset by an increase of $1,732,930 in exports to other countries. The drop in the price of sugar was chiefly responsible for the decrease in the total value of shipments to the United States. In addition to the products noted above, the most important exports were hides, leather, and tallow. The most important articles brought into Porto Rico from the United States and foreign countries during the fiscal year were rice, valued at $5,069,527, manufactures of cotton, $2,012,640, cloths, $1,808,895, manufactures of iron and steel, $2,939,442, wheat flour, $1,786,589, and pork, $1,253,711.

Roads. At the end of the fiscal year 1913, macadamized highways had been constructed to a total length of 1070 kilometers, of which 7.7 kilometers were completed during the year. Of the total, 657 kilometers had been constructed since the establishment of the civil government in 1901. At the end of the year there were 960 passenger and 67 freight automobiles using these highways. In recent years a considerable portion of road construction has been done by convict labor. Work on improvements of harbors at San Juan and Ponce were continued during 1913. These harbors when completed will make it much better adapted to receive shipping than before. A railroad pier at San Juan was nearing completion at the end of the year. A survey and estimate for the further dredging of San Juan harbor has been completed by the United States engineers, and is to be used as a basis for recommendation as to appropriation for that purpose.

Irrigation. One of the most important undertakings for the benefit of the island is the irrigation system which has been under way for several years and now approaches completion. The position, extent, and direction of the mountain ranges and the influence of prevailing winds in Porto Rico cause a precipitation of the atmosphere moisture upon the northern and eastern portions of the island, depriving large areas of otherwise fertile and productive lands to the south and west of the main divide of the rainfall essential to their use for agriculture. The owners of these lands for many years made use of primitive methods of irrigation which were too uncertain in their operation and efficiency to insure the satisfactory and uninterrupted service necessary to success in the extensive agricultural enterprises in which the land owners were engaged. The principal crop of the region is sugar-cane, which requires a large and uninterrupted supply of moisture. Investigations which led up to the system now nearing completion were made in 1908, and an appropriation of $3,000,000 was enacted into a law at the special session of the legislature held in September of that year. The system consists of three distinct but complementary projects: The Patillas reservoir, dam, and distributing system in the east; the Carite reservoir, dam, tunnel, and distributing system; and the Guayabal reservoir, dam, and distributing system with their subsidiary structures. In three years two-thirds of the work was completed, and the entire system will be effective early in 1914. The irrigation district is about 40 miles long, and averages two miles in width. The final legislation necessary for the completion of the work was enacted at a special session of the Assembly convened in June, 1913. The act passed at this session constitutes the general revision of the previous irrigation legislation to adapt it to the needs of the property owners and to properly protect the interests of the people of Porto Rico. It provides for the financing of a project in such a manner as to best serve the interests of the land owners by extending the payment required of them to meet the entire cost of the project over an estimated period of 43 years. The total cost of constructing the system will be about $4,000,000.

EDUCATION. The daily attendance in the public schools of the island during the year averaged 117,360, a slight increase over the average of the previous school year. The total enrollment was 166,785. The legislative assembly of 1913 passed new laws providing for increased revenues for educational purposes. Appropriations for these purposes were increased by over $1,000,000, and an increase of nearly 800 in the number of teachers was also authorized. Accommodations will be provided for at least 30,000 more pupils. The Assembly also appropriated $150,000 for the construction of four high-school buildings in addition to the four now in use. Four of the high schools maintained by the department of education during the past year have offered a four-year course, while during 1913-14 four-year studies will be added to the course given by one of the other high schools. Certificates from the high schools of Porto Rico have been recognized by many of the leading colleges and universities on the mainland, in which graduates are pursuing courses. A commercial course has been added to the other studies given in the high schools, two years being required for its completion. The domestic science department of the Central High School at San Juan has awakened much interest. Special attention is being devoted throughout the educational system to practice courses such as manual training, household economy, and agricultural and commercial studies. Instruction in night schools throughout the island, numbering 299 up to 1913, had been confined to academic courses. In that year a night trade school was opened at San Juan, with classes in carpentry, brick-laying, plumbing, and automobile economics. The total enrollment in this school was 206. The interest in agricultural instruction has been maintained throughout the islands to such an extent that in many places property owners have placed land at the disposition of the school boards for use in giving practical instruction. Military instruction in the schools meets with enthusiastic interest. The University of Porto Rico is the highest institution in the educational system. The board of trustees in 1913 completed plans to open a college of law, a college of pharmacy, and a university high school. Special evening classes in industrial work were begun in January, 1913. A college of agriculture and mechanic arts is being developed at Mayaguez, near the United States agricultural experiment station. This was started with an enrollment of 126 students.

HEALTH AND SANITATION. The sanitation service of the island was reorganized in accordance with the provisions of a law passed in 1912. The new methods of administration proved successful, though they at first met with some opposition. Results were accomplished in the eradication of bubonic plague, and several epidemics of typhoid fever. The first suspended case of bubonic plague was found on January 14, 1912, and by February 15, 1913, all evidences of plague infection were absent for a sufficient length of time to indicate its eradication. During this period, 36 persons died of the plague and $227,000 was expended for emergency measures. At the time of the organization of the sanitation service few of the towns of the island had proper water supply and sewerage systems. As a result of the work of the service, a number of water systems had been installed and others are being projected, while sewerage systems are being planned and installed as rapidly as funds are available. The legislature of 1913 provided for the establishment of an institute for the study of tropical diseases. Aside from the work indicated, this institute furnishes a valuable course of instruction to medical officers and inspectors of the sanitation service as well as other persons interested in tropical diseases and sanitation work. The work of eradicating hook-worm, although far from complete, continues to progress as rapidly as funds available permit. During 1913, 29,816 cases were treated. These resulted in complete cure of 10,583. The most difficult problem confronting the health authorities at the present time is the prevalence of tuberculosis. The death rate from this disease in Porto Rico is approximately 100 per cent. The legislature of 1913 made a small appropriation to assist in the eradication of this disease. An important feature of the health work in Porto Rico has been the mosquito-eradication service, inaugurated in 1911 under the direction of Major Robert E. Noble, United States army. This work has resulted in a marked decrease in the number of mosquitoes in 85 per cent. of the towns of the island and a material decrease in the number of cases of malaria in districts where formerly its prevalence was serious. In Porto Rico mosquitoes that transmit malaria, elephantiasis, and yellow fever are found in nearly all parts of the island, and their eradication is of great importance in preventing the spread of the first two diseases and in preventing an epidemic of yellow fever.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the island include an insane asylum, and asylum for the blind, girls' charity school, and boys' charity school. These, with the exception of the blind asylum, are in San Juan. The latter is in Ponce. Penal institutions include the jails and penitentiary and reform school. On January 30, 1913, there were 1567 persons serving sentences in the penal institutions.

LEGISLATION. The first session of the seventh legislative assembly convened on January 13, 1913. During its sixty days of session, 118 laws and 24 joint resolutions were passed. Special attention was devoted to revenue measures for the purpose of increasing the amount of funds available for education and public works. Provision was made for the erection of seven district hospitals and several other laws were enacted in the interest of health and sanitation. In addition to these acts, there were others to promote commerce and agriculture, and other interests of the people of the island, and the legislature completed its work by passing the necessary bills to appropriate funds for the conduct of the government during the fiscal year 1914. On June 20, 1913, the legislature was convened in special session for the purpose of modifying and completing the legislation necessary for financing, completion, and operation of the irrigation project referred to above, and the creation of an agricultural and industrial bank.

Other important measures passed at the legislative session of 1913 included amendments to the employers' liability law and the creation of a commission to make a study of the employers' liability. Measures were passed regulating the employment of women and children for an eight-hour day under certain conditions. A law was enacted to aid in the suppression of tuberculosis, and provisions were made for the registration of foreign corporations. As a whole, the laws passed during the regular and special sessions give to the work accomplished a progressive character, highly creditable to the legislature of Porto Rico.

The island was free from political agitation in 1913. In October President Wilson appointed Arthur Yager governor to succeed George R. Colton.

PORTUGAL. A European republic (since 1910) occupying the western coast of the Iberian Peninsula. The capital is Lisbon.

	Sq. kms.	1900	1911	D.
Aveiro	2,758	303,169	336,243	110
Beja	10,255	163,612	192,499	19
Braga	2,693	357,159	382,276	142
Bragança	6,510	185,162	192,024	29
Castello Branco	6,688	216,608	241,184	36
Coimbra	3,907	332,168	359,387	92
Evora	7,400	128,062	148,295	20
Faro	5,019	255,191	272,861	54
Guarda	5,482	261,630	271,616	49
Leiria	3,412	238,755	262,632	77
Lisbon	7,941	709,509	852,354	107
Portalegre	6,231	124,431	141,481	23
Porto	2,312	597,935	679,540	294
Santarem	6,619	283,154	325,775	49
Vianna do Castello	2,221	215,267	227,250	102
Villa Real	4,273	242,196	245,547	57
Viseu	5,019	402,259	416,744	83
Total	88,740	5,016,267	5,547,708	62
Azores	2,388	256,291	242,565	101
Madeira	815	158,574	169,783	208
Republic	91,943	5,423,132	5,960,056	65

AREA AND POPULATION. The area by districts and the results of the census of December 1, 1911, compared with that of 1910, with density per square kilometer in 1911, are shown in the foregoing table.

Of the total population in 1911, 2,828,691 were males and 3,131,365 females. Foreigners in the country numbered 41,197, of whom 20,517 were Spaniards and 12,143 Brazilians. Lisbon had (1911) 435,359; Porto, 194,009; Braga, 30,436; Setúbal, 24,687; Funchal, (Madeira), 20,844; Coimbra, 20,581; Evora, 17,901; Coyilbã, 15,745; Faro, 12,680; Tavira, 11,665; Portalegre, 11,603; Aveiro, 11,523; Elvas 10,645; Vianna do Castello, 10,486; Beja, 10,113; Angra (Azores), 10,057. There were (1909) 34,150 marriages, 176,707 births, 111,395 deaths. Emigrants, 1910, 39,515; 1911, 59,661 (of whom 48,202 went to Brazil); 1912, 88,929. Alarm is felt in Portugal over the excessive emigration and efforts are being made to restrict it.

EDUCATION. Although primary instruction is nominally compulsory, more than 70 per cent. of the people over six years of age remain illiterate. A decree of March 29, 1911, was designed to combat old methods and provided for strict enforcement of laws regarding elementary education. There were then reported to be 7120 primary and 32 secondary schools. There are special schools, but they are ill attended. Higher education is provided in the universities—Coimbra, Lisbon, and Porto (Oporto).

The law (1911) separating church and state has been enforced; no appropriation is made for worship; all creeds are tolerated.

PRODUCTION. Agriculture engages three-fifths of the population. Crops and pasture occupy 26.2 per cent. of the total area; vineyards, 3.5; orchards, 3.9; forest, 17.3; 43.1 per cent. is barren or uncultivable. The production of wheat in 1912 was 3,225,000 quintals. Complete production figures are unavailable. In the highlands cereals, flax, hemp, and vines are grown; the products of the lowlands are rice, olives, almonds, figs, and citrous fruits. Livestock is raised. The mineral output is important. Output of sulphur in 1911, 272,052 metric tons; copper, 811 tons; copper precipitate, 3963; cupreous pyrites, 10,427; iron, 19,541; arsenic, 887; anthracite, 10,610; silver ore, 3667; uranium, 814; wolfram, 902. Salt, marble, gypsum, and lime are worked. The manufactured products are gloves, silks, woolens, linens, cottons, metal and metal wares, tobacco, cigars, etc. The value of the fisheries products in 1910 was 5,919,842 milreis (sardines, 2,943,778 milreis; tunny fish, 322,696; cod, 440,018; whale, 22,790).

COMMERCE AND COMMUNICATIONS. The special trade is shown in the table below in contos (1 conto = 1000 milreis) for three years: A = raw materials, B = foodstuffs, C = yarns and textiles, D = machinery, implements, etc., E = miscellaneous manufactures, F = live animals, G = tare, C. and B. = coin and bullion, and includes all precious metals.

	Imports			Exports		
	1909	1910	1911	1909	1910	1911
A	28,404	30,207	32,493	6,866	7,394	7,140
B	18,662	16,065	12,805	15,462	19,138	19,044
C	6,582	7,829	7,682	2,177	3,064	1,522
D	4,694	5,849	6,078	149	135	139
E	5,246	5,954	5,900	2,098	2,458	2,277

	Imports			Exports		
	1909	1910	1911	1909	1910	1911
F	2,859	3,456	3,032	4,142	3,535	3,943
G	124	148	137	.....	.....	.....
Mdse.	66,607	69,508	68,127	30,894	35,724	34,065
C. & B..	36	617	954	905	614	417
Total...	66,643	70,125	69,081	31,799	36,338	34,482

The principal articles of export in 1911, with values in thousands of milreis, were wine, 11,933; cork, 4378; animals, 3943; fish, 3104; tropical fruits, 1635; cotton textiles, 1185; timber, 905; copper, 869; olive oil, 544. The principal countries of origin and destination (values in thousands of milreis) were the United Kingdom with imports, 19,398, and exports, 6935; Germany, 12,128 and 3300; United States, 5835 and 842; Belgium, 5267 and 1070; France, 5238 and 1359; Spain, 5106 and 5764; Portuguese colonies, 2574 and 2233; Brazil, 1854 and 6316; Netherlands, 1816 and 755; Italy, 1714 and 629; Norway, 1320 and 190. Vessels entered in the 1911 trade, 10,370, of 19,154,239 tons. Merchant marine (1911), 66 steamers, of 70,193 tons, and 259 sail, of 43,844.

Railway lines in operation January 1, 1913, 2983 kilometers, of which 1148 kms. state-owned. Telegraph lines (1912), 7089 kms.; wires, 19,658 kms.; stations, 580; wireless stations, 6, with 8 on board vessels. Urban telephone lines, 410 kms., wires, 1891; interurban lines, 388, wires, 779. Post offices, 4081.

Finance. By a recent decree the name of the monetary unit has been altered from milreis to escudo, with no change in value. The escudo is divided into 100 centavos (1 centavo = 10 reis) and the milreis into 1000 reis. The budget details below for 1913-14 are given in thousands of escudos.

Revenue	1000 es.	Expenditure	1000 es.
Indirect taxes	23,848	Debt	27,912
Direct taxes	12,479	Finance	5,206
Stamps, etc.	9,998	Interior	6,115
Domains	612	Justice, etc.	1,267
Port dues	46	War	9.856
Monopolies	8,510	Marine	3,825
Interest	5,738	Colonies	2,297
Repayments	451	For. affairs	567
State enterprises	9,208	Public works	14,664
Other	1,232	Treasury	732
		Various	2,475
Ordinary	72,120		74,915
Extraordinary	3,774		......
Total	75,894		74,915

The foreign debt stood December 31, 1912, at 176,376,650 escudos, the internal debt at 708,131,002.

Army. Military service is obligatory between the ages of 20 and 25 and the army law in force provides for active reserve and territorial forces organized on a militia basis. In his 21st year the recruit is called out for 15 weeks' service in the infantry, 20 in the artillery and 30 in the cavalry, and every year thereafter until the end of his 30th year. There is an annual training of two weeks. Subsequently he is enrolled for ten years in the reserve and for five years in the national army. The permanent force is maintained during the non-training season by voluntary enlistment. The army is organized in eight divisions, each division corresponding to a military district, and one cavalry brigade, while a permanent force of between 7000 and 12,000 is recruited by voluntary enlistment for garrison service in the Azores and Madeira. Each divisional area furnishes, in addition to the first line, two reserve infantry brigades and certain territorial formation. The peace strength of Portugal, exclusive of colonial garrisons, is estimated at about 30,000, which could be increased to a war footing of about 120,000 with ultimately 140,000 more trained men available.

The state patronizes and subsidizes volunteer societies with military instruction for young men between the ages of 17 and 20, especially those interested in rifle practice. The fundamental unit for battle is the division, each division consisting of four infantry regiments, one cavalry regiment, one artillery regiment, one company of army service corps, one company of train, one sanitary company, one company of sappers, one section of pontoniers, one searchlight section, one section of field telegraphists, one section of wireless telegraphists. The metropolitan army embraces eight divisions on the continent and three independent commands in the Azores and Madeira.

There is also a reserve and territorial army, the former being organized on somewhat the same basis as the army, while the territorial army consists of those subject to service between the ages of 17 and 20, and 40 and 45, the staffs being composed of senior officers of reserves and retired veteran officers. There is also a republican guard which acts as police, formed of 146 officers and 5000 men and a fiscal guard for customs duty with 92 officers, 5100 men and 300 horses, being organized as 20 companies of infantry and two squadrons of cavalry. The colonial army of Portugal is officered by volunteer officers and the natives in the ranks are paid by conscription. There is a total of 649 officers, 9759 men, of which 2532 are Europeans, 7227 natives with 300 horses. In Angola and Mozambique there are various companies of second-line troops.

Navy. The fleet includes 27 vessels of 22,100 aggregate tons (excluding training ships, yachts, etc), detailed as follows: 1 armored coast-defense vessel (3030 tons), 4 cruisers (9410), 6 gunboats (2573) of date 1895-1909, 11 gunboats (4300) of date 1874-90, 1 torpedo gunboat (535), 4 torpedo boats (252). Under construcution, 2 torpedo-boat destroyers and 3 torpedo boats.

In May, 1913, the government issued orders with a naval construction syndicate of British firms for the development of a new squadron to consist of 2 cruisers of 2500 tons and 20 knots speed, 6 destroyers of 900 tons and 32 knots speed, 3 submarines (350 tons and 14 knots), and a submarine depot ship (850 tons and 15 knots), to be provided in two years.

Government. The republic was proclaimed October 5, 1910, and sanctioned by the National Assembly August 21, 1911. The constitution of August 21, 1911, provides for a president, to be elected every four years by Congress. He is not eligible for reëlection. He appoints his ministers, who are responsible to the Parliament. This body is composed of a senate of 71 members elected for six years, and a chamber of 164 deputies directly elected for three years.

The dethroned monarch was Manoel II., born 1889, who came to the throne in 1908 upon the assassination of his father and elder brother.

He married, September 4, 1913, Princess Augustina of Hohenzollern.

The president of the republic in 1913 was Dr. Manoel de Arriaga (1911-15). The ministry as constituted January 9, 1912, was as follows: Alfonso Costa, premier and minister of finance; R. Rodriguez, interior; Alvaro de Castro, justice; Pereira Bastos, war; J. Freitas Ribeiro, marine; A. Macieira, foreign affairs; M. da Silva, public works; Almeida Ribeiro, colonies.

HISTORY

THE CABINET CRISIS. Late in December, 1912, the dissensions within the coalition ministry of Dr. Duarte Leite became so strong that the cabinet resigned. During the first week in January Antonio José de Almeida, chief of the Republican Evolutionist group, attempted to form a new ministry with a programme of amnesty for political offenders, economy, and revision of the separation and education laws. Senhor de Almeida failed to obtain the necessary support from the Independents, however, and was therefore unable to form a government. Senhor Alfonso Costa, who was minister of justice under the provisional government, then established a Democratic ministry constituted as follows: President of the council, Alfonso Costa; justice, Alvaro Castro; war, Pereira Bastos; public works, Antonio Maria da Silva; colonies, Almeida Ribeiro; finance, Marnoco Souza; marine, Freitas Ribeiro; foreign affairs, Antonio Macieira; interior, Rodrigo Rodriguez. The Costa cabinet gained the allegiance of the Democratic, Unionist, and Independent groups; while Senhor Almeida led the Republican Evolutionist opposition. The ministerial declaration of January 11 insisted upon the scrupulous observance of the separation law, and the erection of a ministry of public instruction; it promised to improve public service, to maintain friendship with Great Britain, and cultivate closer relations with Brazil, to achieve financial equilibrium in the budget of 1914, to establish an administrative code, to revise the electoral law, to reform the Lisbon police, to give the colonies greater financial and administrative autonomy, to develop railways, and to reduce the cost of living.

INSURRECTIONS. The government was repeatedly disturbed, but at no time seriously menaced by Syndicalist and Monarchist plots. On the night of April 26 the Radical Republican and Syndicalist federations organized an uprising; bombs were thrown and revolvers discharged, but no casualties were reported. The most serious result of the incident was the arrest of 150 additional political suspects. In June the Camoens anniversary celebration was interrupted by Syndicalist bomb-throwers, and an indignant crowd burnt the Syndicalist meeting place. Again on July 20-21 bomb outrages were perpetrated. On September 25 a plot to assassinate the premier was discovered and thwarted. On October 21 a plot of more serious dimensions, this time organized by the Monarchists, resulted in disturbances in Lisbon. Wires were cut, railways damaged, and a bridge dynamited, but the rioters were arrested, and order was restored. Among the Monarchists arrested was Senhor Carvalho Monteiro, a well-known millionaire. The frequency of insurrections in Portugal, the numerous arrests, and the unmistakable prevalence of discontent among many classes of the population, were interpreted by observers (and notably by Mr. McCullagh writing for the *Nineteenth Century and After*) as indications that the Republican anti-clerical régime was not proving itself an unqualified success. Furthermore, the alleged cruel and arbitrary treatment of political prisoners was vehemently censured, and the government was obliged to promise mitigatory measures.

PARLIAMENT. On June 13 Dr. Costa informed Parliament that the budget expenditures for the coming year would leave a surplus of over $1,000,000, of which about one-half would be expended on the navy. In the supplementary parliamentary elections of November, the Democrats won 34 out of 37 contested seats, thus giving Senhor Costa a considerable majority. Parliament was opened on December 3. Victor Hugo Azeveo Continho was elected president of the Chamber of Deputies, and M. Braamcamp of the Senate.

The sternly anti-clerical policy of the Costa government was well illustrated by the haling of the bishop of Oporto to a police court for administering confirmation in his diocese, from which he had been expelled. About the first of June the Portuguese legation at the Vatican was abolished.

PORTUGUESE EAST AFRICA (or MOZAMBIQUE).. A Portuguese African colony. Area, 293,860 square miles; population, about 3,120,000. Capital, Lourenço Marques, , with 10,000 inhabitants. The trade is divided among the state territories, the Mozambique Company, and the Nyassa Company. Railway lines, about 365 miles. The 1910-11 budget showed revenue, 5,418,332 milreis; expenditure, 5,118,832. The governorship in 1913 was vacant.

PORTUGUESE GUINEA. A Portuguese West African colony, covering 13,940 square miles and having about 820,000 inhabitants. Capital, Bolama. The imports in 1908 were valued at 875,155 milreis and the exports at 492,238. The 1910-11 budget balanced at 309,900 milreis. The colony includes the islands of Bolama and Bijagoz. In 1913 the governor was Lieut. C. A. Pereira.

POST, GEORGE BROWNE. An American architect, died November 28, 1913. He was born in New York City in 1837; graduated from the civil engineering course in New York University in 1858; studied architecture with Richard Morris Hunt, but at the outbreak of the Civil War discontinued his studies and went to the front as a captain in the Twenty-second New York Volunteers. He rose through the ranks of major and lieutenant-colonel to that of colonel. After the war he returned to New York and opened an office in partnership with Charles D. Gambol. One of his earliest commissions was the old Equitable Life Assurance building which was burned in 1912. Among other buildings in New York City which he designed are the Stock Exchange, the Produce Exchange, and the Cotton Exchange, the Pulitzer building, the Western Union building, and many other business structures. He was also the designer of the residence of Cornelius Vanderbilt at 57th Street and Fifth Avenue. Among the best-known of his structures outside of New York City is the Wisconsin State Capitol. He was a member of the national advisory board on fuels and structural materials from 1906 until his death, and from 1909 until his death was a member of the National Bureau of Fine Arts. In 1904 he was a member of the board of commissioners of the St. Louis Exposition. In 1911 he was awarded a gold medal by the American Institute of Architects.

POST-IMPRESSIONISTS. See PAINTING AND SCULPTURE.

POSTAL SAVINGS BANKS. During the past decade there has been a phenomenal growth of postal savings banks throughout the world. From data compiled by the Department of Commerce it appeared that the number of depositors in such banks had increased from 28,931,000 in 1901-03 to 52,176,000 in 1911-13. The deposits had increased from a total of $1,588,908,000 in 1901-03 to $2,691,860,000 in 1911-13. During this decade the greatest increases occurred in the following countries: Belgium, France, Italy, Russia, United Kingdom, Japan, Egypt, and New Zealand. The accompanying table gives a complete summary for the period 1911-13. See also BANKS AND BANKING; and FINANCIAL REVIEW.

Austria	1911	2,261,658	46,319,119	20.48
Belgium	1911	2,472,697	166,306,355	67.26
Bulgaria	1910	280,775	9,129,433	32.52
Finland	1911	66,002	1,530,935	23.20
France	1911	5,970,839	328,890,226	55.08
Hungary	1911	823,251	23,653,855	28.73
Italy	1912	5,780,010	376,072,443	65.06
Netherlands ...	1911	1,556,950	68,726,245	44.14
Russia	1912	2,691,361	192,456,530	70.02
Sweden	1911	565,759	12,645,957	22.35
United King'm.	1912	12,750,693	886,221,861	69.50
Bahamas	1911	2,108	124,086	58.86
Canada	1913	145,396	41,885,255	288.08
British Guiana.	1911	25,816	1,188,467	46.04
Dutch Guiana..	1911	10,268	361,067	35.16
British India...	1912	1,500,834	61,313,176	40.85
Ceylon	1911	89,074	989,058	11.10
S. Settl'ments..	1911	4,812	429,531	89.26
Fed. Malay S..	1911	6,200	391,439	63.14
Du. E. Indies..	1912	102,486	3,789,750	36.98
Japan	1913	12,584,743	96,495,896	7.67
Formosa	1912	143,650	1,133,847	7.89
Gold Coast.....	1911	3,137	169,262	53.96
Rhodesia	1911	4,214	538,970	127.90
Sierra Leone...	1911	6,002	485,735	80.93
U. of S. Africa.	1911	225,238	29,824,117	132.41
Egypt	1912	265,003	2,819,947	10.64
Tunis	1911	5,567	1,397,357	251.01
New S. Wales.	1911	407,011	85,630,423	210.39
Victoria	1913	678,470	102,714,680	151.39
Queensland	1913	159,232	39,530,662	248.26
Tasmania	1912	26,817	3,827,308	142.72
W. Australia...	1913	114,481	21,776,721	190.22
New Zealand..	1911	405,566	75,640,920	186.51
Philippine Isl...	1913	39,909	1,498,560	37.55

POTASH. See FERTILIZERS.

POTATOES. The world's potato crop in 1913 was about normal or up to the average production, which is approximately 5,000,000,000 bushels. The North American yield was quite low but elsewhere the yields were sufficiently large to offset the shortage. Germany produced the largest crop in her history, the total production amounting to 1,986,246,000 bushels, with an average yield of over 235 bushels per acre or 12 bushels per acre more than in 1912. The crop of 1913 exceeded the one of 1912, which was also a record crop, by 143,559,000 bushels. Of the tubers harvested in 1913, 84,032,000 bushels, or 4.2 per cent., were diseased. Statistics for 10 years showed that low production was coincident with a low percentage of disease injury. The 1913 large crop was not considered as having been badly attacked by disease. During the year more than 300 factories were engaged in Germany in drying potatoes and in the manufacture of potato chips and potato meal, over 15,000,000 bushels being used for this purpose. The production of potatoes in the United Kingdom in 1913 was also high, amounting to about 350,000,000 bushels and exceeding the previous year's yield, the excess being about 45,000,000 bushels in Ireland and 36,000,000 bushels in England and Wales. The Canadian crop was approximately 80,000,000 bushels, or about the same as in 1912, but 20,000,000 bushels less than the heavy crop of 1909. This production just about satisfies the Canadian demand.

According to estimates by the Department of Agriculture the United States produced 331,525,000 bushels on 3,668,000 acres, as compared with 420,647,000 bushels on 3,711,000 acres in 1912, a decrease of 89,122,000 bushels and of 43,000 acres. The average yield per acre was only 90.4 bushels, being 23 bushels less than in the previous year. The average farm price on December 1 was 68.7 cents per bushel and the total crop value on that date was $227,903,000, while in 1912 the price on the corresponding date was 50.5 cents, making the value of the much larger crop $212,550,000. The leading States were Michigan with 33,600,000 bushels; Wisconsin with 32,155,000; and Minnesota with 30,250,000 bushels. These yields were only about from 2 to 3 million bushels smaller than the year before, but in many of the States stricken by the severe drouth of the season, the crop was only half of normal. The States following in production those mentioned were Maine with 28,160,000 bushels; New York with 26,640,000 bushels; and Pennsylvania with 23,320,000 bushels. New York produced 11,520,000 bushels and Pennsylvania 5,565,000 bushels less than in 1912, while Maine yielded 4,994,000 bushels more. In Ohio, Indiana, Illinois, Iowa, Missouri, and Kentucky the crop was less than half the previous crop. The lowest average yield per acre, 38 bushels, was secured in Missouri. In addition to Maine the States reporting larger crops than in 1912 were Rhode Island, Virginia, Georgia, Alabama, Mississippi, Louisiana, Oklahoma, Arkansas, Wyoming, Colorado, and Utah. In Colorado the increase amounted to 1,125,000 bushels, but in all the other States it was small. Maine with its increased acreage and an average yield of 220 bushels per acre, produced a large quantity of seed stock for shipment beyond its borders. See HORTICULTURE, paragraph on *Quarantine.*

POTTERY. See CLAY-WORKING INDUSTRIES.

POWELL, LYMAN PIERSON. An American clergyman and educator, appointed in 1913 president of Hobart College. He was born in Farmington, Del., in 1866. He graduated from Johns Hopkins University in 1890. For two years following he was a graduate student at that university, and in 1902-3 took post graduate studies at the University of Wisconsin. From 1893-95 he was a fellow of the University of Pennsylvania, and during the same period was university extension lecturer. In 1897 he graduated from the Philadelphia Divinity School. He was ordained a priest of the Protestant Episcopal Church in 1898. Following a year's pastorate in Ambler, Pa., he became rector of Saint John's Episcopal Church at Lansdowne, Pa., and in 1903 of the Protestant Episcopal parish at Northampton, Mass. He has written much, and among other works: *The History of Education in Delaware* (1893); *Christian Science—The Faith and its Founder* (1907); *The Art of Natural Sleep* (1908); *The*

Emmanuel Movement in a New England Town (1909); and *Heavenly Heretics* (1910). He was also the editor of several series of books, including *American Historic Towns, Current Religious Literature,* and a *Devotional Series.*

POWER, Electric, Transmission of. See Transmission of Electric Power.

POWERS, Horace. An American jurist and public official, died December 9, 1913. Born at Morristown, Vt., in 1835, he graduated from the University of Vermont in 1855; studied law, and in 1858 was admitted to the bar. In the same year he was elected a member of the State House of Representatives. In 1872-3 he was a member of the Senate; in 1874 was again elected to the House, serving as speaker; from 1875 to 1890 was judge of the Supreme Court of the State; and from 1891 to 1901 representative in Congress.

PRECIOUS STONES. See Gems and Precious Stones.

PREECE, Sir William Henry. An English engineer and inventor, died November 6, 1913. Born in 1844, he received his education in science and engineering in France and Germany; from 1872-78 was engaged in railway and electrical undertakings, especially in Saxony; and he built electric railways in the years following in Italy and Switzerland. He first introduced the talking machine and telephone into England, and held many patents connected with the telegraphs and telephones. For several years he was engineer-in-chief and electrician of the British Post Office. In 1898 he delivered several lectures in the United States, in the course of which he contended that American technical education was far ahead of that given in the British schools. He wrote many scientific papers for engineering journals.

PRENDERGAST, Sir Harry North Dalrymple. A British soldier, died July 25, 1913. He was born in India in 1834 and was educated at Brighton College and at Addiscombe. In 1854 he entered the army. He served in the Persian War in 1857; in the Abyssinian War in 1867-68; and in the latter year was in command of the sappers with the Indian Expedition to the Mediterranean. In 1885-86 he commanded the expedition which resulted in the annexation of Upper Burma. He was afterwards in command of several important districts in India and Burma. The Burmese War brought his active military career to a close, but he afterwards held many important positions in the city government of Burma. He wrote many articles for reviews and magazines.

PRESBYTERIAN CHURCH. The total number of Presbyterians in the United States in 1913 was 2,027,598, with 16,286 churches, and 13,740 ministers. There are four large and several smaller denominations under the Presbyterian system. The largest is the Presbyterian Church of the United States of America, known as the Northern Presbyterians, with 1,402,533 communicants, 9987 churches, and 9286 ministers, in 1913. The Presbyterian Church of the United States known as the Southern Presbyterians had, in 1913, 300,771 communicants, 3049 churches, and 1781 ministers. Other bodies which are treated under their own titles are the Cumberland Presbyterian Church, the United Presbyterian Church, and the Reform Presbyterian Church. A very small body is the Associate Presbyterian denomination, which numbered in 1913, 786 communicants, 22 churches, and 12 ministers.

The Northern Presbyterian Church or the Presbyterian Church in the United States of America is divided into 40 synods, with 295 Presbyteries. The Sunday School members in 1913 numbered 1,281,961. The total contributions received for all purposes amounted to $22,293,808. Of this amount, $18,835,643 was for congregational purposes; $1,928,363 for home missions; $1,530,795 for foreign missions; and $369,730 for colleges. The chief administrative body is the General Assembly, which has general charge of its work. The missionary work of the denomination is under the control of the board of foreign missions and the board of home missions. There were in 1913 27 foreign missions; 162 stations; 1155 missionaries; and 129,009 communicants. There were distributed 155,773,673 pages of *Christian Truth* in 20 languages. Educational work of the denomination is in charge of the board of education. Other important boards are the board of publication and Sunday school work, the board of church erection, and the board of ministerial relief and sustentation. The denomination supports 11 theological seminaries and many colleges and universities. In the latter there were, in 1913, 22,776 students.

The General Assembly of 1913 met, beginning its sessions on May 15, with John Timothy Stone, D. D., as moderator. Among the important acts of the assembly were the following: The proposed world conference of all Christian churches was approved; a resolution was adopted permitting the board of home missions to present to college and seminary students a declaration pledging three years in some form of Christian mission service under the American flag; approval of schools for lay workers. Resolutions on marriage and divorce to be accepted by Presbyterians were adopted. Social service was declared to be secondary to evangelism as a mission of the church. A board of temperance was constituted. Church members were forbidden in any way to aid or abet the evil of intemperance. A committee on the white slave traffic was appointed. See also Religious Denominations and Movements.

PRESBYTERIAN CHURCH, Cumberland. See Presbyterian Church.

PRICES. The increased cost of living has been a subject of general discussion throughout the world for a number of years. Since 1895 or 1896 with only temporary recessions there has been a continuous rise of prices. Thus *Bradstreet's* index number, being the sum of wholesale prices of 96 commodities, rose from an average of 5.9124 for the year 1896 to 9.2290 for November, 1913. *Bradstreet's* index for some other years was as follows: 1900, 7.8839; 1905, 8.0987; 1906, 8.4176; 1907, 8.9045; 1908, 8.0094; 1909, 8.5153; 1910, 8.9881; 1911, 8.7132; 1912, 9.1867. In 1913 there was a continuous decline in the general price level from 9.4592 for January to 8.9521 for June. Thereafter the level rose gradually and continuously. The indexes of the London *Economist* and the *Statist* (Sauerbeck's) indicated a perceptible decline of prices from August to the close of the year. Thus the *Statist* index was 86.4 for January and only 83.3 for November. This index takes the average for the eleven years 1867-1877 as its base, or 100. It reached a minimum of 61 for 1896; rose to 68 for 1899; to 72 for 1905; to 80 for 1907; fell to 73 for 1908; but rose steadily again to 80 for 1911, and 85 for 1912. For the first ten months of 1913 it averaged 85.4. In Canada the level of prices, as shown by the Department of Labor index, rose almost steadily through the year. In January it was 136.2 and in November 138.4. This rise in Canada contrasted sharply with the fall in Great Britain.

From Australia also came reports of a very great rise of prices. A New Zealand commission reported a rise of 20 per cent. in the prices of bread stuffs from 1895 to 1911. The statistician of the Australian commonwealth reported an increase of staple commodity prices of 25.1 per cent. from 1901 to 1913. During the same period wages had risen 23.9 per cent.

The bureau of labor statistics of the Department of Labor published among its *Bulletins* a series on *Retail Prices and Cost of Living.* This showed the relative level of prices for the following fifteen articles at various dates since 1890: Sirloin steak, round steak, rib roast, pork chops, bacon, ham, lard, hens, wheat flour, corn meal, strictly fresh eggs, creamery butter, potatoes, granulated sugar, and fresh milk. The index number for these articles for the ten years 1890-99 was taken as 100. When weighted according to their average consumption in workingmen's families, their index number fell to the minimum of 95.2 for the year 1896. It rose to 103 for 1900; to 116.4 for 1905; to 144 for 1910; to 143 for 1911; to 154.2 for 1912; and to 158.1 for December, 1912. For the months of 1913 it varied as follows: January, 157.9; February, 155.8; March, 156.7; April, 158.9; May, 157.2; June, 159.2; July, 163.6; and August, 166.1. There was thus an indicated increase in prices of 74.4 per cent. over 1896; and of 61.2 per cent. over 1900. When the prices of these articles were not weighted according to consumption their average showed a rise from 94.9 in 1896 to 102.9 in 1900; 148.5 in 1910; 157.9 in 1912; and 171.3 in August, 1913. The increase from August, 1912, to August, 1913, was 8.6 per cent.; while the entire increase of August, 1913, over the average for 1896 was 8 per cent.

American Academy of Political and Social Science. This body devoted its annual meeting at Philadelphia in April to considerations on the cost of living. Family standards were discussed by Professor S. N. Patten and Martha Bensley Bruère, the latter contending that $1200 was the minimum for decent family living. Other papers discussed the difficulties of putting the farmer in closer contact with the consumer; the possibilities of the new scientific home management; the effects of cold storage; the advantages of municipal control of terminal markets; the control and distribution of immigration; the effect of the changing value of money; the relation of advertising and false capitalization to prices. Mrs. Charlotte P. Gilman, in a paper on "Waste of Private Housekeeping," contended that housework should be more specialized. She put the present waste of labor at "over 40 per cent. of the world's full output," i.e. fifty women do the work of fifty men when ten could do it as well; the waste of plant she put at 90 per cent. and the waste in purchasing at 60 per cent. All these wastes and many other advantages she thought would follow a more wholesale plan of providing food and shelter. Wages in the United States and the need of minimum wage laws were discussed by Professor Henry R. Seager and Professor Scott Neering. Dr. Albert Shaw found in the coöperative movement a means of reducing living costs. See FINANCIAL REVIEW and PARCEL POST.

PRIMARIES, Direct. See ELECTORAL REFORM.

PRIMARY ELECTION LAWS. See ELECTORAL REFORM.

PRINCE EDWARD ISLAND. A province of the Dominion of Canada. Area, 2184 square miles; population (census of June 1, 1911), 93,728 (103,259 in 1901). Charlottetown is the provincial capital, with 11.198 inhabitants in 1911. A lieutenant-governor administers the province—Benjamin Rogers in 1913 (appointed June 1, 1910). Premier in 1913, John A. Mathieson. See section so entitled under CANADA, DOMINION OF.

PRINCETON UNIVERSITY. The total enrollment in all departments of the university in the collegiate year 1913-14 was 1599, divided as follows: Graduate school, 176; school of electrical engineering, 13; undergraduates, 1355; students qualified for regular standing, 47; special students, 4; students pursuing partial courses 4. The faculty and instructors numbered 202, and the officers of administration 15. Among the changes in the faculty made since the collegiate year 1912-13 are the following: Dr. Pierre Léon Boutrouz was elected professor of mathematics; Dr. Charles Grosvenor Osgood was elected professor of English; Dr. George Dobbin Brown was appointed reference librarian of the university; Philip Marshall Brown was appointed assistant professor of international law for 1913-14; Dr. Herbert Spencer Murch was elected assistant in English; Dr. William Ezra Lingelbach was appointed lecturer on modern history for the year 1913-14; and Dr. William Ernest Hocking, assistant professor of philosophy at Yale University, was appointed lecturer on philosophy. Dr. Charles Green Rockwood, Jr., professor of mathematics, emeritus, died on July 2, 1913. Francis Landey Patton, former president of the university, and Stuart professor of ethics and the philosophy of religion, resigned from active service during the year. He was elected professor emeritus. Professor Alexander Thomas Ormond, the McCosh professor of philosophy, resigned to become president of Grove City College, Grove City, Pa. Professor Henry Van Dyke, Murray professor of English literature, resigned to become minister to the Netherlands. New buildings for the graduate college were ready for occupancy in September, 1913, and were dedicated on October 22. The buildings consist of Thomson College, gift of the late Mrs. J. R. Thomson Swann; Proctor Hall, the gift of William Cooper Proctor of the class of 1883, in memory of his parents; Pyne Tower, the gift of M. Taylor Pyne of the class of 1877; Wyman House, contributed by the estate of Isaac C. Wyman; and the Cleveland Memorial Tower, in memory of former President Grover Cleveland, erected out of popular contributions collected by the Cleveland Monument Association. The disbursements for the work of the university in 1912-13 amounted to $812,823, and the receipts to $734,260. The total assets were, up to the end of the year, $5,535,037. The library contained at the end of the year 306,218 volumes and 76,383 unbound periodicals and pamphlets. The president is John Grier Hibben, Ph.D., D.D. For additional notes relating to the history of the university during 1913, see UNIVERSITIES AND COLLEGES.

PROFESSIONAL SCHOOLS. See UNIVERSITIES AND COLLEGES.

PROHIBITION. See LIQUOR REGULATION.

PROSTITUTION. In no previous year has there been such an extensive and determined movement against the so-called social evil. There was a sincere and effective enforcement of the white-slave law, the constitutionality of which was upheld by the United States Supreme Court; there were investigations and repressive activities in many cities; the education of public opinion was carried on through the press, the pulpit, platform, and theatre; and there was formed in New York City a voluntary bureau of social hygiene for scientific investigation. See the special article on this bureau for its study of conditions in New York City. Data were presented to the public showing that 50,000 girls are drawn annually into a life of vice; that of the 300,000 professional prostitutes in the country, about one-sixth die each year; and that the annual cost of sexual immorality and venereal diseases in this country is three billions of dollars. Ex-Secretary of War Stimson declared that the extent of venereal infection among American soldiers was "shameful beyond that of the army of any other civilized nation." Army and naval records showed that as a rule ten per cent. of the soldiers and sailors were disabled through venereal contagion. The marked public interest expressed itself in Massachusetts by the passage of an act providing for a commission of five with extensive powers to conduct a State-wide investigation of commercialized vice.

In Chicago, where the vice commission had made a thorough and comprehensive investigation in 1911, the board of aldermen began another inquiry through a committee created by it. The charge was made that this was largely a political move to ward off immediate action in the expectation that the reform movement would soon spend its force. Investigations were made and reports issued in Portland (Ore.), Atlanta, Syracuse, and Rochester, in addition to those of New York and Philadelphia noted below. All reports revealed essentially the same conditions. They also established the national character of the problem through the fact that those thriving upon the vice move from city to city, taking their women with them; they thus avoid the local points of greatest repression.

CALIFORNIA. In California the most notable legislation of the year was passed in the red-light injunction and abatement bill. This law was the result of the persistent activities of the women of the State, who carried on a campaign of publicity in all cities and towns and exerted an insistent and direct political pressure upon the legislature. The law was aimed at the segregated districts which were found in every city of the State. It declared houses of prostitution public nuisances; held both proprietor and owner responsible; enabled any citizen, whether damaged or not, to bring action; and provided for a fine against the property itself. The women's organizations in the different cities provided for the care of any prostitutes set free by the enforcement of this law. Another law, passed following the Diggs-Caminetti case, prohibited the transportation of women from one county to another for immoral purposes.

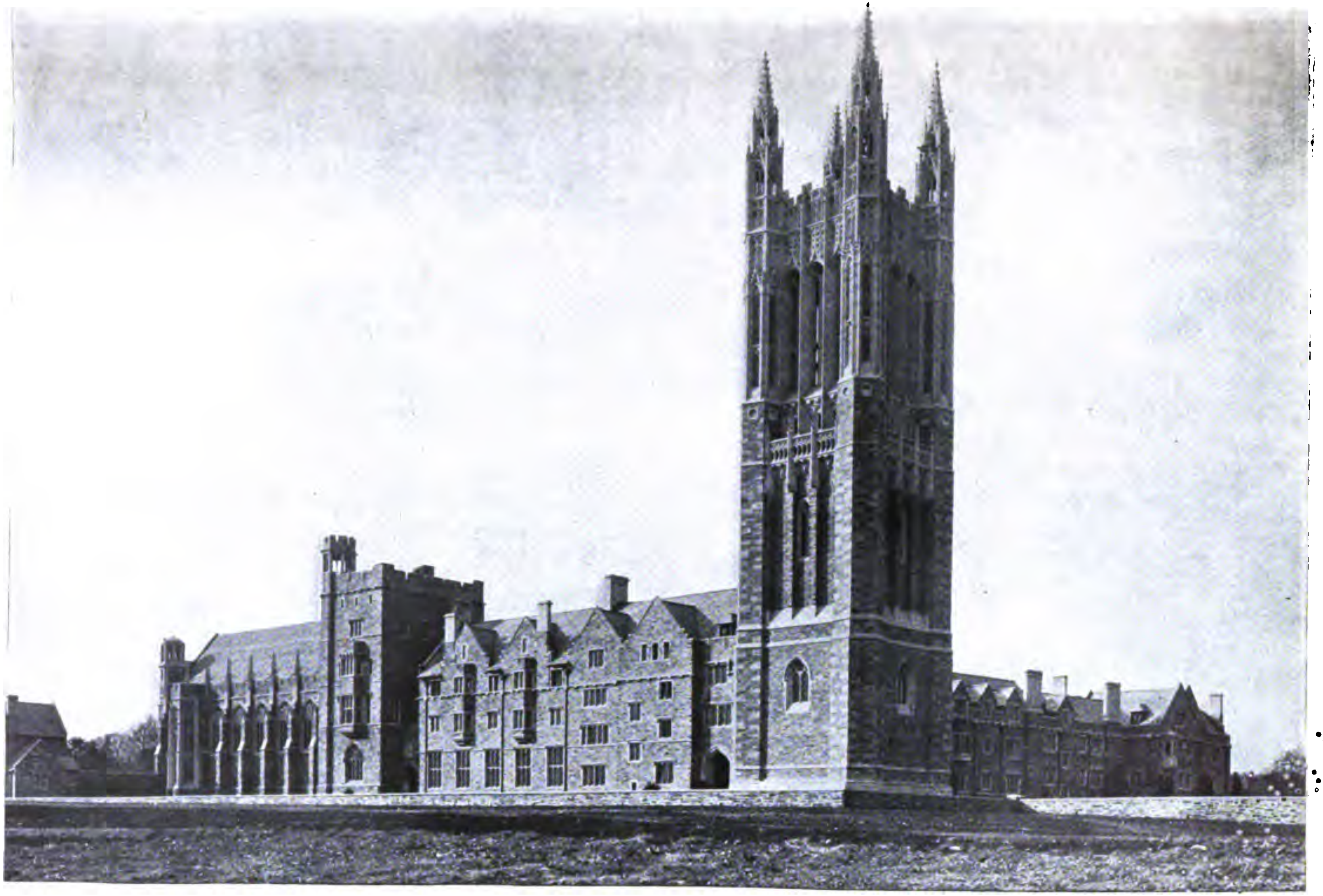
IOWA. In Iowa had originated in 1909 the principles embodied in the above injunction and abatement law. Following Iowa five other States enacted a similar measure; but in September, 1913, the Iowa law was declared void owing to the discovery that a formal step in the legislative processes of enactment had been omitted. Meanwhile the law had showed that it was an effective measure of repression, since it placed in jeopardy the owner of the house where prostitution was carried on.

WHITE SLAVE ACT. The Mann act forbidding the transportation between States of women for immoral purposes was attacked on the ground that by it the national government usurped the police powers of the States and interfered with the right of individuals to travel freely from State to State regardless of motive. The Supreme Court of the country on February 24, in a decision written by Justice McKenna, upheld the act against both charges. It admitted the power of the States to control the morals of citizens, but, since there is a domain to which the jurisdiction of the States does not reach, this act "does not encroach upon the jurisdiction of the States." By the Constitution Congress is given power over transportation between the States, and this act was declared by the court to be an expression of that power just as was the pure food and drug act. As to the right above mentioned the decision declared that a right exercised in morality cannot be made to sustain a right to be exercised in immorality. In this respect the white slave act differs not at all from the laws prohibiting the sending of obscene literature through the mails or articles for immoral use, or prohibiting lotteries.

Up to about March, 1913, there had been 337 convictions under the Mann act, with total sentences of 607 years and $66,600 fines. There were 106 cases then pending; and there had been 35 acquittals. An analysis of the sentences showed that the judges as a rule gave much weight to the degree of coercion involved. They thus distinguished those cases in which the defendant persuaded a girl or woman of previous good character from those where defendant habitually associated with prostitutes and lived off their earnings, and from those where defendant, earning a legitimate livelihood, occasionally associated with immoral women. Thus, a Pittsburgh man convicted under the law was sentenced to imprisonment for one day and a fine of $200; but in other cases the maximum penalty of five years in prison and a fine of $5000 has been imposed.

Diggs-Caminetti Case. The most notable case of the year under this law was the trial of two San Francisco business men, Diggs and Caminetti, both married, for transporting two girls to Nevada. The notoriety given the case was due to the local prominence of the persons involved and an alleged attempt through political influence to have their prosecution discontinued.

NEW YORK. Following the sensational revelations connected with the Rosenthal murder in



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PRINCETON UNIVERSITY
THE GRADUATE COLLEGE AND CLEVELAND MEMORIAL TOWER

1912, an inquiry into the relations of the police force to commercial vice was undertaken by the Curran committee of the board of aldermen. Numerous witnesses were heard and every phase of prostitution and its relation to police corruption was exposed. Witnesses told how prostitutes were recruited; how the business of prostitution was organized and controlled; how representatives of the police collected money for protection with great regularity; how the avarice of graft collectors knew almost no bounds; how there appeared to be a fairly well defined system of dividing the spoils among police officials of various grades.

With a view to police reform a citizens' committee issued a report early in March recommending the extension of the term of the police commissioner to ten years, the removal of all control of vices from the police, and the creation of a board of social welfare to deal with the social evil, the saloons, gambling, and amusements. According to the report this board would be under a director with rank of commissioner. It would have independent control over certain policemen and detectives. About the same time the Bureau of Social Hygiene (q.v.) began a study of European police systems.

Tribelhorn Case. The first conviction in many years of a real estate agent having charge of a disorderly house occurred in December, when Ernest Tribelhorn, agent of a New York apartment house, was convicted in the Court of Special Sessions. He was sentenced to twenty-five days' imprisonment and a fine of $500. The court held that a fine in such a case would be insufficient; and that the publicity and the disgrace attending actual imprisonment was needed to effect reform. An appeal was made to the Appellate Division.

ILLINOIS. A State-wide inquiry was carried out by a special committee of the Illinois senate headed by Lieutenant-Governor O'Hara. In the principal cities were held hearings to which the employers of girls and women were subpœnaed and testified regarding wages, working conditions, and the cost of living of employes. Inmates and keepers of brothel houses were also subpœnaed. The employers differed sharply as to the relation of low wages to prostitution; most of them thought there was little connection, while the fallen women thought there was much. Some of the largest employers thought wages could be raised to cover the minimum cost of living without affecting the profits of the business. The secretary of the Illinois Manufacturers' Association expressed almost the only public opposition to the investigation. The commission communicated with governors and legislatures, and interviewed President Wilson with reference to the calling of a national conference on the subject. One immediate result of the agitation was the announcement of new and higher minimum wages by department stores in Chicago and by the International Harvester Company. Lieutenant-Governor O'Hara declared that in Chicago a division of the Municipal Court, called the Morals Court, was opened on April 1.

PHILADELPHIA. A commission appointed by Mayor Blankenburg to investigate the social evil in Philadelphia issued a report covering 372 resorts and 3311 prostitutes. The report laid special stress on the familiarity of children in certain districts with the life of vice owing to the commingling of inmates and frequenters of houses of prostitution with the population. In fifteen blocks of the more notorious streets were 1542 children of ages six to sixteen. The report said: "This condition has no parallel in any other city, so far as we know." The field work was directed by Mr. Kneeland, above mentioned, as conducting inquiries in Chicago and New York; yet his investigators "were astonished at the open association of the worst forms of vice and of innocence." It was estimated that more than $6,000,000 is spent directly for prostitution yearly in Philadelphia.

SUGGESTED REFORMS. Among the plans for fighting the evil which have been suggested or recently enacted are the following: The "little tin-plate" ordinance whereby every building in the city must have on its front a metal plate setting forth the name of the owner; a law making it impossible for the owner of a house of prostitution to collect insurance thereon; a law providing that the property in a house of prostitution may be confiscated; a law empowering the board of health to close a house of ill-fame on the ground that it spreads contagious disease; a law such as that passed in California and noted above; provision at public expense of forms of amusement to supplant those places which profit by feeding the social evil; minimum-wage laws.

MASSACHUSETTS. This was the first State to institute by legislative enactment a State-wide investigation by commission of prostitution in all its phases. In April a law was enacted creating for this purpose a commission of five of whom one must be a woman.

INTERNATIONAL CONGRESS. The fifth International Congress for the Suppression of the White Slave Traffic was opened in London, June 30. A message from King George congratulated the National Vigilance Association and the International Bureau on their success. Among the subjects discussed was the extension of laws protecting children employed at theatres, circuses, and concerts. Great attention was also given to the problem of moral education, particularly as it relates to the relation of the sexes and the dangers confronting youth in modern society. The delegates from Germany, Denmark, Holland, and Spain unanimously favored the abolition of the state regulation of the social evil, but M. Hennequin of France, doubted the practicability of immediate abolition owing to social and economic conditions. Reports showed that there had been established in each country adopting the convention of the congress a bureau for the collection of information and the communication of it to all countries concerned. Moreover the supporting nations had agreed to frame domestic legislation with a view to providing more speedy methods for suppressing the evil. See also MINIMUM WAGE.

PROTESTANT EPISCOPAL CHURCH. The total number of communicants in this denomination in the United States in 1913 was 986,607, an increase of 16,156 over 1912. The total number in the church throughout the world was 1,004,217, an increase of 17,533. In the Sunday schools in the United States, were enrolled 442,234 scholars and 50,493 teachers. The total contributions made for all purposes during the year amounted to $19,386,209. The denomination is divided into 91 dioceses in the United States, each of which is presided over by a bishop. In addition there are 13 dioceses in foreign countries. The missions of the denomination are in the charge of the Domestic and Foreign Mission Society. The net appropriations made for missions during the year was $1,133,377. The expenditures exceeded this by $197,633,000. The church lost during the year two of its bishops: Bishop Doane of Albany (q.v.), and Bishop Jaggar, who was sometime bishop of Southern Ohio. From 1908 to the time of his death he had charge of the American chuuches in Europe. The bishops consecrated during the year were Samuel Gavitt Babcock, suffragan bishop of Massachusetts; F. C. McIlwain, suffragan bishop of Minnesota; Theodore Irving Reese, bishop coadjutor of Southern Ohio; William Farrer Weeks, bishop coadjutor of Vermont. The denomination has been active in recent years in efforts to bring about a closer unity between the Protestant denominations. Among the organizations to effect this was the Christian Unity Foundation, which during 1913 continued its work of conference and research. It had conferences with the Disciples of Christ, Baptists, Congregationalists, and Methodists. Another movement in which the denomination has been active is the world conference on faith and order, which has enlisted coöperation of both Catholic and Protestant bodies for a closer understanding. The educational interests of the denomination are in charge of the general board of religious education. During this year this board promoted the organization of diocesan boards of education. It formulated and published a standard curriculum for the help of the schools of the church. The church sustains missions in nearly all foreign countries.

The forty-third triennial general convention of the church was held in New York City beginning October 10. The presiding bishop was Rev. Daniel S. Tuttle, bishop of Missouri. The convention met in the cathedral of St. John the Divine. At the first session was held a preliminary meeting of the missionary bishops, who are confined to the field of home missions. This was followed by a formal opening of the convention by a great procession of the delegates. The opening session was followed by business meetings at which matters of great importance were taken up. Among the most notable of these was the election of Rev. Dr. Alexander Mann of Trinity Church, Boston, as president of the house of deputies, a body of representatives from all parts of the country. Dr. Mann is identified with the low church element of the denomination. Dr. W. T. Manning, rector of Trinity Church, New York City, and the representative of the high church element, was defeated. One of the most impressive ceremonies of the convention was the united offering service of the woman's auxiliary. During this service, an offertory of $307,500 was made. Among the other important matters which came before the convention were the question of a change of name, and a memorial regarding the marriage canon. The latter required, "first, the publication of the banns of marriage in the church or the publication of civil license in some newspaper, and second, the presentation on behalf of each of the parties desiring to be married, of a certificate of a legally practicing physician that he or she is normal and not afflicted with a disease rendering marriage inadvisable." The discussion over the change of name was spirited. Precautions had been taken to prevent this controversy, but it came up accidentally through the question of the revision of the prayer book, and it was precipitated when a memorial was presented providing for a committee to revise the Book of Common Prayer—a move which the low church supporters thought involved changes in the title page, and therefore a change of the name of the denomination. Dr. Leighton Parks, rector of St. Bartholomew's Church, in New York City, spoke of the proposed change of name as an act of "robbery." No action was taken by the convention on this matter. On the same day a resolution was presented expressing sympathy with the international committee on marriage and divorce. Other matters discussed were the various missionary movements, theories of religious education, the idea of a world conference, a measure providing for the organization of church provinces which shall correspond to that of the general body of the church—i.e. with houses of bishops and deputies in each province—and preparations for the next convention. It was voted to hold this, which will be the fiftieth, in St. Louis. Perhaps the most important single matter of business transacted in the convention was the passage of an amendment to the constitution which makes impossible any change in name or system of representation in general convention without a two-thirds' favorable majority in the house of bishops and the house of deputies. See also Religious Denominations and Movements.

PRUSSIA. See Germany.

PSYCHIATRIC CLINIC AND HOSPITAL OF JOHNS HOPKINS UNIVERSITY. See Insanity.

PSYCHIATRY. See Insanity.

PSYCHIC RESEARCH. Among the many honors conferred upon Professor Henri Bergson has been the appointment to the presidency of the British Society for Psychical Research. Before this society he delivered the presidential address on May 28. In it he expressed the opinion (*Proceedings*, xxvi, 462) that the experimental methods of the society should be kept free from the mechanistic and vitalistic principles of the older sciences, and also he thought that there was still a vast region of unexplored territory within which the society could advantageously work. He did not, however, take the extreme position assumed by C. E. Ozanne (*Hibbert Journal*, xii., 72), "that not only the evidential matter dealing with data of personal reminiscence . . . but the so-called non-evidential matter also, has gone far to prove the reality of spirit communication." One of the main contentions of this writer is that the remarks made by mediums while in the trance state are much more typical of the intelligence and disposition of the communicating "spirit" than of the mental equipment of the medium. A topic which still occupies a large place of interest in the field of psychic research is that of "automatic script," or the coincidental writings of two persons on the same subject—often in like phrases—without any of the usual means of communication. This phenomenon of "cross-correspondence" is generally classed as a form of telepathy. J. Maxwell's criticism of a number of these scripts has called forth a storm of replies filling almost one-half of the literary contents in the 67th part of the *Proceedings* (pp. 375-418). In defense, cryptomnesia is generally admitted as an explanation even to the extent of supposing a subliminal "self." Most of the writers of the year allow their critics no definite place of attack inasmuch as most of the statements made are outlines of hypothesis and belief. An example is an extract from the reply of Mrs. Sidgwick to Dr. Maxwell (*Proceedings*, xxvi., 400), "In the meanwhile I should like to conclude by saying that though we are not yet justified in feeling any certainty, I myself think the evidence is pointing towards the conclusion that our former fellow-workers are still working with us." A similar controversy is waging in *Bedrock* (ii., 57 and 194) concerning proofs of telepathy. It appears that a number of business men have pledged sums ranging from £1000 to £5000 for evidence of thought-transference. William Crookes, Oliver Lodge, and W. F. Barrett have refused to consider the offers. Lankester's view of the situation is expressed in the sentence, "I say that Sir Oliver Lodge and his associates have not given any demonstration of its existence nor even any evidence which makes its existence probable." The phenomena of dreams appears to open a comparatively new field for psychic investigations. According to F. V. Eeden (*Proceedings*, xxvi, 431), "for the exploration of this mysterious world of dreams we want not only the purely scientific, but also the poetical function." Later, again, "no theory has as yet explained *all* about dreams; no! not even more than the tiniest part. We have not yet crossed the threshold of that world, which for us is still 'occult.'" A great deal of the invective hurled against modern science by critics of this type savors very much of the criticism which Clifford's thesis on "automatism" received a quarter of a century ago. G. W. Balfour, a member of the British Society, makes a consistent attempt to erect a form of "psychophysical idealism" on the foundation of telepathy (*Hibbert Journal*, ix., 544). The universe consists of conscious entities, like the Leibnitzian monads, in the sense that these entities "reflect all the rest in different degrees of perfection." They differ from the monads, however, in that the "relation between them is not one of pre-established harmony; it is a relation of real reciprocity."

PSYCHOLOGICAL ASSOCIATION, AMERICAN. See PSYCHOLOGY.

PSYCHOLOGY. The immediate estimation of current tendencies and trends within a fluent body of knowledge is very likely to be gross and subjective. Time is necessary to a seasoned judgment. From year to year emphasis changes, accent shifts, purposes are modified, the coloring of the scientific background brightens or fades, new terms creep in and old terms acquire new meanings. The precise significance to the science of all these modifications only subsequent events will fully reveal. When taken individually, they may indicate progress or development; or they may, on the other hand, stand simply for caprice, or idiosyncrasy, or want of historical perspective, or desire for novelty, or lack of scientific training. The historian of the year can do little more than record a few of the more important books and articles and researches and addresses, and leave the rest to the deliberate reviewer of decades and generations and systems and schools. As regards the present case, psychology, pure and applied, is suffering wider and wider extension. Its present ramifications, when measured in terms of literary product, cover an exceedingly broad territory. This review must, then, limit itself to instances and examples, and also, for the greater part, it must be confined to the pure psychology of the human individual—the basis of all psychology. As to noting general drift, it will limit itself to the impression that discussion and investigation have taken the direction (1) of a criticism, more or less self-conscious, of methods and means; and (2) of a searching and analytical examination of the elementary processes and the simpler, perceptual, formations. Reference to the reviews of previous years (see YEAR BOOK, 1907, 661; 1910, 613; 1911, 590 and 592) will suggest that the reconstruction, since 1900, of the psychology of thought and of voluntary action has furnished a strong motive to this current examination and criticism.

MEETINGS AND GENERAL NEWS. At the meeting of the American Psychological Association, held in conjunction with the American Philosophical Association, at New Haven, Conn., on December 29-31, under the presidency of H. C. Warren, the question of the general methods of psychology was discussed, with particular emphasis laid on the nature of consciousness. This joint meeting forms a unique contrast to a set of resolutions recently passed by a group of six German philosophers to the effect that no experimental psychologists should be appointed to the existing chairs of philosophy in the German higher institutions of learning, but that provision should be made for the creation of new chairs specifically designated for empirical psychology. Among a number of eminent psychologists who have taken a stand against the spirit of the document is W. Wundt (see his *Die Psychologie im Kampf ums Dasein*). At the meeting of the Experimental Psychologists, held at Wesleyan University, Middletown, Conn., on April 10-12, the discussion of method took a decided turn against sanctioning the "behavior-psychology," particularly as outlined by J. B. Watson (*v. infra* on "method").

Several academic changes and appointments occurred during the year. At Munich, O. Külpe has succeeded T. Lipps, who has been unable for a number of years to discharge his duties on account of illness. In England, Prof. James Ward recently passed his 70th birthday. In recognition of his services to philosophy and psychology, and in manifestation of the esteem in which his friends and colleagues hold him, a fund has been subscribed for the purpose of painting a portrait of the distinguished philosopher. H. Piéron was appointed director of the Sorbonne laboratory at Paris, founded, and for a long term of years directed, by the late A. Binet. Piéron was also called to succeed Binet as editor of *L'année psychologique*. P. Janet, professor of experimental psychology at the Collège de France, was appointed to the chair, left vacant by the death of A. Fouillée, at the French Academy of Moral and Political Science. The list of psychological periodicals is this year increased by the new quarterly, *Revue des sciences psychologique,* published under the editorship of J. Tastevin and P.-L. Couchaud.

General Books and Treatises. The number of general texts has been unusually small. D. R. Major's *The Elements of Psychology* has not been out long enough to have elicited a definite critical response. It represents no emphatically new point of view, but it gives, rather, a large number of excerpts from the works of other psychologists. R. M. Yerkes and D. W. La Rue have coöperated on an *Outline of a Study of the Self.* C. L. Morgan's *Instinct and Experience,* published last year, has passed into a German translation (by R. Thesing). In J. Ward's Henry Sidgwick Memorial Lecture on *Heredity and Memory,* now published in book form, heredity in racial experience is compared with the formation of habit within the individual. *L'année psychologique* continues, under the new directorship, to take a catholic view of the march of psychological progress. Last year the annual volume contained articles on memory, on the scope of psychology, the laws of mental activity, and the personal equation. More than two hundred pages were devoted to a useful review of the preceding year in which French and American works fared better than German. In a readable book entitled *The Psychology of Laughter,* B. Sidis places laughter with the religious and the artistic activities; like them laughter arises from the instinct of play. A similar view is held by C. E. Seashore in his *Psychology in Daily Life*—a book which includes many wholesome maxims with regard to play, work, memory, mental health, and musical training. The maxims are sanctioned, as the author demonstrates in a simple and popular manner, by the facts and principles of psychology. E. L. Thorndike's *The Original Nature of Man* describes "the inherited foundation of intellect, morals, and skill," and then turns them to account in education. The volume summarizes and criticizes a good deal that has been written about instincts and capacities. Münsterberg discusses the application of psychology to the problems of business in his book on *Psychology and Industrial Efficiency.* The volume outlines a programme for the coöperation of psychology with economic interests to the end that "the best possible man" shall be selected for "the best possible work" to "the best possible effect." While most of the experimental suggestions given savor too strongly of reaction-time and crude tests of mental capacity, nevertheless many valuable suggestions are offered for the guidance of future steps taken in this direction. The book will, doubtless, indicate to the lay mind the value of empirical psychology in the "scientific management" of business and industry.

Freud's treatise on *The Interpretation of Dreams,* originally published in 1899, has been done into English from the third edition in the German by A. A. Brill, an ardent follower of the Freudian school. This translation makes available to the American public a clear and readable explanation of dreams on the basis of "sex-repressions" (see Year Book, 1911, p. 593; and 1912, p. 598). A good summary of the literature, sample interpretations, personal experiences of the author, all help to make the presentation clear. Although many psychologists agree that it is possible at times to trace dreams to "repressions" of one sort or another, only a few follow the Freudian school to the extent of interpreting dreams in the light of social sex-restrictions.

The wide current use of the term "behavior" as designative of the objectively visible movements of organisms is well illustrated by M. Parmelee's book, *The Science of Human Behavior,* in which the phenomena attributed to behavior are described in semi-popular fashion with a background supplied from the "results of recent work in biology in general and in zoölogy and neurology in particular, in genetic and comparative psychology, and in anthropology." It traces the thread of "behavior" upward through its physical and chemical foundations to its physiological function and anatomical and morphological structure throughout the entire evolutionary series, and, finally, to its highest level in the organized superstructure of social custom.

Sensation and Perception. *Vision.* Attempts have been made to remove some of the shortcomings of the Hering theory of vision. One of the difficulties lies in the phenomenon of contrast. S. Blachowski has investigated the effects of "reciprocal contrast" (*Zeitschr. f. Sinnesphysiol.,* xlvii., 291). His results show a lower intensive sensitivity at the centre of the retina than at the periphery, and, in consequence, a proportionately greater degree of excitation in the periphery than at the centre under the influence of a given photic stimulus. L. Hermann has made a study of the effect of compensating a given color for the amount of contrast induced from a gray background, and has found a distinct weakening of the chroma of the color after it has been compensated in light-value (*ibid.,* xlvii., 97). A painstaking piece of investigation has been published by G. Rand (*The Factors that Influence the Sensitivity of the Retina to Color: A Quantitative Study and Methods of Standardization, Psychol. Rev., Mon. Supp.,* 15, No. 1). Almost one-half of the work comprises an historical and critical survey of the literature. On the whole, the investigation shows "how strongly the changes in the illumination of the visual field influence the color sensitivity of the peripheral retina." That there is a difference in the discrimination of brightness in uniocular and binocular vision has been shown by S. Dawson (*Brit. J. of Psychol.,* vi., 78). "Small differences of intensity are detected more frequently when both eyes are used, judgments are given with more certainty and consistency, and their reaction-times are shorter." Explanation of these facts is given in terms of the increased steadiness in the impression. There are a number of studies in reversible perspective (J. C. Flügel *ibid.,* v. 357; vi., 60; A. Zimmer, *Zeitschr. f. Sinnesphysiol.,* xlvii., 106) which seem to contradict the well-known theory, originally attributed to Necker, that makes reversion dependent upon change of fixation. It is now claimed that change or shift of attention, without change of ocular fixation, may explain many instances of this phenomenon. The results should be considered, however, in connection with Wundt's doctrine of assimilation. Of interest under the heading of vision are the studies in the visual perception of movement by T. Takei (*Zeitschr. f. Sinnesphysiol.,* xlvii., 377), H. J. Watt (*Brit. J. of Psychol.*, vi., 26), and S. Meyer (*Zeitschr. f. Psych.*, lxv., 40). P. Homuth went over again (*Arch. f. d. ges. Psych.*, xxvi., 181 and 239) the effects of short and of continued stimulation of the visual organ. His results seem to him to indicate that blue, yellow, and purple are the psychophysical primaries, and hence that visual theory is to be built upon them. Continuing his work upon visual adaptation, C. E. Ferree seeks experimentally to demonstrate (*Amer. Jour. of Psych.*, xxiv., 378) that the periodic disappearance of small stimulus-areas, long referred to fluctuations of attention, falls, just as well as large areas, under the laws of sensory adaptation.

Audition. Much work has been done of late in the psychology of hearing. E. R. Jaensch proved, by means of an ingenious apparatus, that (1) sinusoid variations in air-waves produce tones, when the waves are equal in length, (2) sinusoid variations produce noises, when the waves are greatly unequal in length, and (3) when these variations are only slight, a vowel-quality results. He substantiates the approximate optimal pitch of the vowel sounds as recently established by W. Köhler: 250 vd. for *U*, 500 vd. for *O*, 1000 vd. for *A*, 2000 vd. for *E*, and 4000 vd. for *I* (*Zeitschr. f. Sinnesphysiol.*, xlvii., 219). The results of Hermann and Jaensch upon the formants of vowel-sounds (see YEAR BOOK, 1907, 659) were also confirmed last year by L. J. Wittmann (*Arch. f. d. ges. Psych.*, xxix, 389), who worked by the Marbe method of smoke-rings. The region which Bezold claimed to be essential to the hearing of speech (b′-g″) has been shown to be wanting in a number of observers who could nevertheless hear spoken words (see *Zeitschr. f. Sinnesphysiol.*, xlvii., 192). Sound localization is claiming a renewed interest. G. F. Arps and O. Klemm have reported work done on the influence of intensity on the localization of sounds with reference to distance from the observer. Some of the factors which account for this influence are those of variations in the absolute intensity, variations in the relative intensity for both ears, and, finally, the angle of incidence at each ear. But in addition to these three, there is still another factor which is unknown (*Psychol. Studien*, viii., 226). A later study of O. Klemm (*ibid.*, viii., 497) in monaural hearing points out that while localization in distance is possible, yet it is more difficult under these conditions than under those of binaural hearing. J. Peterson writes in defense of the Helmholtzian theory of audition (*Psychol. Rev.*, xx., 312) as representing the explanation which is most nearly adequate to the facts. F. Densmore has added another volume to her work on Indian music (*Chippewa Music*) and with it a collection of phonograms, bringing the total up to something like 350 separate records, a beginning which ought to compare favorably—at least in number—with C. Stumpf's archives of phonograms at Berlin.

TACTUAL AND KINÆSTHETIC. Since Goldscheider's classical work, the sense-organs in and near the surface of the joints have generally been held responsible (with occasional protest from other investigators) for the perception of movement of the bodily members. T. Erismann has now brought a good deal of evidence (*Arch. f. d. ges. Psych.*, xxviii., 1) to show the participation in this perception of qualities from muscle and tendon. Erismann also makes it appear probable that these senses suffer in intensity (as do also auditory and tactual sensations) through the deflection of attention. In the same laboratory (Strassburg) the repetition of the psychological experiment of lifted weights gave a value (*ibid.*, xxviii., 183) for differential sensitivity of 1-50, when the basis of weight was the tendinous sensation and not any secondary criterion (as, *e.g.* Müller's "rate of lift").

MEMORY, LEARNING, ASSOCIATION AND ATTENTION. Two well-known German works on memory and learning have been made available to the English-reading public during the year. H. Ebbinghaus's pioneer work, done in the early eighties (*Ueber das Gedächtnis*, 1885), has been translated by H. A. Ruger and C. E. Bussenius; but a more felicitous rendition is to be found in J. W. Baird's transcription of E. Meumann's book on memory under the title, *The Psychology of Learning.* The monumental work of the year is the third part of G. E. Müller's *Zur Analyse der Gedächtnistätigkeit und des Vorstellungsverlaufes* (*Zeitschr. f. Psych.*, *Ergänzungsband*, viii., 1-567), which precedes the second part. It discusses the secondary aids to learning, shows their advantages and disadvantages, the rôle of diagrams and colored presentations, the consciousness of recognition, affective coloring, the intent of recall, determining tendencies, and reciprocal effects in the memory content. A. Aall proposes (*Zeitschr. f. Psych.*, lxvi., 1) a new law of memory, to which, however, G. E. Müller gives attention in his work. Aall's results indicate that there is a difference in the efficiency of learning when the instruction assumed is to the effect that the material must be available either (*a*) for a long or an indefinitely great time, or (*b*) for a specific occasion. A. Wohlgemuth points out (*Brit. J. of Psych.*, v., 447) that "the prevailing method of studying memory merely by means of syllables is inadequate" because "in learning the syllables, visual memory, auditory memory, and motor memory" are involved, while in learning colors and diagrams "only visual imagery and, . . . in some subjects imageless reproduction" are present. With the exception of the final qualification, this statement also agrees with G. E. Müller's work. L. W. Kline and W. A. Owens studied the learning process by requiring their observers to place a series of cards in their proper pigeon-holes (*Psychol. Rev.*, xx., 206) verifying in general a number of the laws of learning and in particular the part played by affection and emotion. P. Ranschburg (*Zeitschr. f. Psych.*, lxvi., 161; lxvii., 22) verified the following laws in an investigation of simultaneously and successively presented letters, numbers, colored objects and diagrams: (1) Simultaneous and similar stimuli seem to inhibit one another in the tendency to coalesce, but there are stages in the degree of coalescence and separation; (2) the attentional clearness of an incorporation depends upon the degree to which less-favored factors are suppressed on account of their similarity. It has been known for some time that the learning by heart of sense or nonsense materials proceeds more rapidly, under experimental conditions, when the repetitions are distributed throughout the period of learning than it does when one repetition follows immediately upon another. Work sent out last year from the Vassar laboratory (*Amer. Jour. of Psych.*, xxiv., 580) suggests that the advantage of distribution may rest, not at all upon a law of verbal association—as is usually supposed—but upon a law of *motor* connections. K. M. Dallenbach extended (*ibid.*, xxiv., 465) the research of Geissler upon the measurement of attention, and he found a close parallelism to exist between degree of attention, on the one hand—as measured directly in terms of clearness—and amount and precision of work performed, on the other. He believes that the distinction between the "dual-level" and the "multi-level" consciousnesses indicates a true difference of individual type. The common conviction that a person, A, can, by staring at the back of another person, B, cause B to look round has been put to experimental test at Leland Stanford University (J. S. Coover: *ibid.*, xxiv., 570), with the result that the observers who thought that they were being stared at were as often wrong as right.

Thought, Action, and Emotion. T. Lipps's monograph on empathy (*Psychol. Untersuch.*, ii., 111) commands first place under this rubric. It treats of a variety of subjects; errors in judgment, geometrical illusions, deceptions in the estimation of visual magnitudes, and many others. It is written in terms of the Herbartian psychology, in which references to the bridge formed by the "impression" between the "ego" and the "objective world" largely figure. In G. E. Müller's work on memory (*op. cit.*) we find contributions to this subject in his discussion of the "conscious attitude" and the "determining tendency." A warning is repeatedly sounded to the effect that unclear elementary processes should not be clothed with a new terminology: When a process is hard to differentiate from other processes, when it is marginal, or when it cannot readily be recognized, a new name for it should not forthwith be coined. In N. Ach's historical experiments on the thought-processes, what was called an "attitude" was very often, as Müller maintains, a misapprehension of details. "The doctrine of 'conscious attitude,' like that of the determining tendency can be characterized by the statement: It is likewise unsuited to psychological analysis." From the Leipzig laboratory a number of studies in reaction are reported. G. Deuchler (*Psychol. Studien*, viii., 117) concludes that the effect of concentrating attention upon one element in a group of complex stimuli tends to inhibit the processes corresponding to the other components. P. Salow (*ibid.*, viii., 506) had left material on the reaction-times for right-hand, left-hand, and both-hand, responses. This material is now brought together to show, among other things, that the interval between instruction and stimulus has a direct and proportionate effect upon the time of reaction.

An article indicative of the trend in the psychology of thought contains a formulation by O. Selz of the laws of productive activity (*Arch. f. d. ges. Psych.*, xxvii., 367). Selz insists that the essence of mental "production" is organization. Laws of association are insufficient to the explanation of mind; they do not show how conscious processes are integrated. To the process of reproduction must be added "operations"—operations of abstraction and of combination. Thought is purposive: It works toward ends, and the operations serve to unite end and means and so to create new combinations. The dangers which lurk in this sort of treatment are (1) a lapse to formal and hypothetical powers, and (2) the translation of the thought processes into logical terms. Like Selz, R. Müller-Freienfels believes in non-ideational factors in thought (*ibid.*, xxvii., 381). He calls them, after the practice of Münsterberg and others, *Stellungnahmen.* They are volitional factors, and they display the relation of the ego to sensation. Every feeling (*gefühl*) includes a motor tendency, a preparation for action. The more active and purposive the thought, the more obvious the motor tendency in the *Stellungnahme*, or motor attitude. Thought may be said to be constituted by these "attitudes," not by ideas. In a general appraisal of the method of question-and-answer or of examination (*Ausfragemethode*), E. B. Titchener inclines to the belief (*Amer. Jour. of Psych*, xxiv., 429) that the method will never "avail, of itself, to settle disputed questions of a systematic kind." Its results must be gross and loose, capable of a variety of interpretations. But the chief use of the method is —as this psychologist thinks—"to make a first survey." It has already served to define the problems of thought, and these problems may now be put into commission for solution by a method of the type of Ach's "systematic experimental introspection." The most notable application of the method of examination made during the year came from Külpe's laboratory at Bonn (T. Haering, *Arch. f. d. ges. Psych.*, xxvi., 269; xxvii, 63, 285). Haering applied it to the doctrine of values (*Werttheorie*). He is led to the conclusion that "value" is not descriptible in terms of consciousness. It is no more to be found in mind than, say, the survival value of an animal's horn is to be found, by anatomical dissection, within the horn. The description of the "valuing consciousness" shows only that a given object is referred to a preëxistent and extra-psychological value—moral, æsthetical, logical, or what not. Valuation, then (*Wertung*), is the subsumption of an experience under a presupposed "absolute" value or sphere of values. In consciousness, values are never established; they are only applied. This result disposes—so the author thinks—of all those psychological theories of value which are based upon psychological factors, *e.g.*, effort or feeling. The whole study is laid out in the realm of "intention," tendency, and *Einstellung.* In a study of embarrassment (*ibid.*, xxvii., 1), W. Hellpach finds the emotion to be determined, in the main, by social factors; namely, by the apprehensive fear of the judgments and opinions of a second person. He connects the expressions of embarrassment (blushing, retreating, automatic movements of hands and feet) with sexual display and allurement.

Methods. The presidential address delivered by E. L. Thorndike before the 1912 session of the American Psychological Association together with a paper read by J. R. Angell at the same session (*Psychol. Rev.*, xx., 91 and 255) sounds the keynote of a discussion of psychological methods begun last year. Both of these papers emphasize the inadequacy of the interpretation of movements or “behavior” as an index to mental processes: The former, by attempting to dispel the illusion that all ideas tend to develop into movement, the latter by outlining problems which could not be solved by “behavior” methods. Since the meetings, J. B. Watson has set forth his articles of faith in the “behavior” methods, and he has expressed his belief that the introspective methods are inferior (*Psychol. Rev.*, xx., 158). M. W. Calkins has more recently joined forces against this proposal (*Psychol. Bull.*, x., 288), but emphasizes the fact that, in her opinion, the methods of introspective psychology have disregarded the organic structure of the conscious “self.” Certain difficulties met with in the methods of comparative psychology are outlined by C. Read (*Brit. J. of Psych.*, vi., 44).

Methods of Expression. The Year Book of 1908 (p. 603) explained the meaning of the psycho-galvanic reflex and the attempts made to include it among the expressive methods of psychology. The researches of the last five years seem to have warranted the editor's reluctance to grant the psychophysical importance commonly attached to the “reflex.” During the past year, A. Gregor, working in Flechsig's laboratory in Leipzig, came to the following conclusions (*Arch. f. d. ges. Psych.*, xxvii., 241): (1) That the deflection of the galvanometer does not rest—at least not wholly—upon feelings or emotions; (2) that intensity of stimulus has an effect upon the amount of the deflection; (3) that the observer has no voluntary control of the reaction; and (4) that, in some cases at least, sweat-secretion plays a part. This fairly elaborate research gives the impression that we are still far from an exact knowledge of the physical and mental conditions of the “psycho-galvanic reaction.” One further step, however, toward this knowledge, is indicated by V. J. Müller's demonstration (*Monatsschr. f. Psychiat. u. Neurol.*, xxxiii., 235) that the contrifugal vehicle of the “reflex” is the sensory nerve. The expressive methods underwent a further extension when G. Katzsch observed (*Zeitschr. f. exper. Pathol. u. Therapie*, xii) intestinal movements through a celluloid window set into the abdomen. Unpleasant feelings decreased and pleasant feelings increased the movements. H. Rose confirmed (*Arch. f. d. ges. Psych.*, xxviii., 94) Störring's contention that unpleasantness increases voluntary strength. His observers pressed harder upon the dynamograph when unpleasantly affected than when they were affectively indifferent. The result contradicts the traditional belief that unpleasantness tends to inhibit voluntary action.

PSYCHOTHERAPY. Interest in this field of investigation has grown during the year out of all proportion to the number of books issued. Together with psychopathology, psychiatry, and psychoanalysis, the subject is claiming the attention of the medical profession on both continents. A committee of the American Psychological Association has drawn up a set of six conclusions based upon a canvas of 116 medical schools. These conclusions (see *Science*, n. s., xxviii., 555) express, among other things, the opinion that a course of instruction in elementary psychology, modified to suit the practical facts of medical experience, should be given to all candidates for the medical degree, preferably before admission to the medical school. The International Association of Medical Psychology and Psychotherapy met in Vienna on September 18 and 19. Among the questions discussed at the second convention of the Società Italiana di Psicologia, held in Rome during the last week in March, was the subject of “the psychological problems of psychotherapy.” The first volume of the *Psychoanalytic Review* has made its appearance under the editorship of W. A. White and S. E. Jelliffe. The editorial announcement promises that the periodical “with its object distinctly to contribute to the problems of psychopathology . . . will endeavor to throw light upon the problems of human conduct, by the study not only of the minds of any particular individuals, but by a research of the human mind in the large, throughout the ages, with a view to reaching thereby certain general laws and principles which may be applied to an understanding of the individual.” A large treatise in two volumes on *Modern Treatment of Nervous and Mental Diseases* has also just appeared under the editorship of these two authors. Its scope is somewhat broader than its title. It furnishes a compendious summary of facts and theories, including eugenics, education, general matters concerning mental deficiency and pathology, and sexual problems. Publications connected more intimately with the Freudian school (see Year Book, 1911, p. 593), are E. Hitschmann's monograph, *Freud's Theories of the Neuroses* (translated by C. R. Payne), and A. A. Brill's volume, *Psychoanalysis, its Theory and Practical Application.* Both of these works are attempts to summarize, one fairly completely and on a technical level, the other somewhat more briefly and in terms of the phraseology of the layman, the main discussions and results of the school. The former gives a complete bibliography of S. Freud's works. It makes a strong, sympathetic plea for confidence in the methods of psychoanalysis. Apparently in order to reach satisfactory results, *rapport* has to be established between patient and physician. It is here that the “doubting Thomases” fail. As A. A. Brill says in his preface, “Nothing can be done without it, and unless this is properly managed, little can be done for the patient. One may get excellent results in surgery or in any other specialty without seeing the patient's face, but psychoanalysis presupposes an intimate acquaintanceship.” This latter work brings the subject of dreams, obsessions, hysteria, sexual perversions, wit, and various neuroses within the compass of a single readable volume. Considerable work has this year been done on the subject of dreams and of myths. In addition to the translation of S. Freud's *Interpretation of Dreams*, K. Abrahams's *Dreams and Myths* has appeared in the series of *Nervous and Mental Disease Monographs*, and O. Rank's *Myth of the Birth of the Hero*, done into English by F. Robbins and S. E. Jelliffe, has been printed serially in the *Journal of Nervous and Mental Disease* (vol. xl.). For a further discussion of the connection between dreams and the sexual life the reader is referred to the positive presentation of the subject by H. Ellis in the *Journal of Abnormal Psychology* (viii., 1374), and to the negative instances cited by M. Solomon (*ibid.*, viii., 73) in support of the interpretation of dreams, and psychoneuroses as well, "on the motive of self-preservation." E. E. Weaver's *Mind and Health* treats the entire subject of "mental healing" on the side of the great religious movements with introductory chapters on the historical concepts of mind and of the principles of psychotherapy. A full bibliography completes the work. To those readers who care to see the facts of psychotherapeutics considered from an ethical and a religious point of view, this book will render valuable service.

PUBLIC CHARITIES. See Charities.

PUBLIC DEBT. See articles on various countries.

PUBLIC LANDS. See Canada, Dominion of.

PUBLIC SCHOOL ADMINISTRATION. See Education in the United States.

PUBLIC SCHOOLS. See Education.

PUBLIC UTILITY COMMISSIONS. See Municipal Government under heading so entitled.

PUBLISHERS' CONGRESS, International. See Copyright.

PUGH, Charles Edmund. An American railway official, died April 8, 1913. He was born in Unionville, Chester County, Pa., in 1841, and was educated at the Millersville Normal School. In 1859 he entered the service of the Pennsylvania Railroad as a station agent, rose through various grades in the service until, in 1882, he became general manager of the Pennsylvania system east of Erie and Pittsburgh. He was elected first vice-president in 1909, and held this office at the time of his death. He also held positions in the directorates of several other railroads.

PUMPS. See Internal Combustion Engines, and Pumping Machinery.

PUMPING MACHINERY. During the year 1913 arrangements were made for the construction of the Humphrey internal combustion pump in the United States. This pump, which has been described in previous issues of the Year Book, consists of a cylinder in which the combustion of an explosive mixture of air and gas takes place directly above the surface of a liquid and produces motion in a tower and play pipe. The succession of explosions produces regular motion in the liquid and gradually the level is depressed against the head at which it can be discharged. The type of pump which it was proposed to manufacture in the United States was limited to a delivery head of 35 ft., but this limit has been exceeded in England, where a number of pumps have been under test and in service for several years. At Chingford, Essex, England, at a large reservoir under control of the Metropolitan Water Board, five Humphrey internal combustion pumps, working on producer gas, were installed, having an aggregate capacity of 180,000,000 gallons per day of 24 hours raised to a height of from 25 to 30 ft. in connection with the raising of water from the River Lea into the Chingford storage reservoir. It was stated in the official report that the average fuel consumption of the four large pumps was .931 pounds of anthracite coal per water horse power, while the small pump, which was rated at 20,000,000 gallons a day capacity gave the remarkable average figure of .8 pounds of anthracite. All the pumps showed an actual average discharge in excess of the contract requirements and the endurance, as well as the efficiency tests, were satisfactorily met.

What was reported to be the largest steam turbine driven pump ever built in the United States was ordered for the Ross pumping station of the city of Pittsburgh. This was a De Laval centrifugal pump with a rated capacity of 100 million gallons for 24 hours against a total head of 56 ft. The Bethlehem Steel Company constructed for service at the New Mission Street station of the same city two vertical triple expansion high-duty pumping engines, each having a capacity of seven million gallons for 24 hours against a head of 495 ft.

PURDUE UNIVERSITY. A State institution of higher education, founded at Lafayette, Ind., in 1869. The total enrollment in all departments in the autumn of 1913 was about 1900. The faculty numbered 180. There were no noteworthy changes during the year, and the only notable benefaction was a gift of about $100,000 to the Agricultural School. The annual income of the university is about $850,000, chiefly derived from Federal and State appropriations. The productive funds amount to about $250,000. The library contains about 50,000 volumes. The president is W. E. Stone.

PURE SHOE BILLS. See Boots and Shoes.

PUT-IN-BAY CELEBRATION. See Expositions.

PUTUMAYO ATROCITIES. See section so entitled under Peru.

QUAKERS. See Friends.

QUARITCH, Bernard.. An English publisher and bookseller, died August 27, 1913. He was the son of Bernard Quaritch, the famous bookseller and collector, who died in 1899. In the same year he succeeded his father in the business. He became one of the best known buyers and collectors of rare books in England and the United States. He was a bidder at sales of many famous collections. A famous acquisition of his was a Gutenburg Bible, known as the Mazarin Bible, because a copy had been in the library of Cardinal Mazarin. This purchase was made for J. Pierpont Morgan. He frequently acted as buying agent for the British Museum and the Society of Antiquaries.

QUEBEC. A province of the Dominion of Canada; area, 351,873 sq. miles; population (census of June 1, 1911), 2,003,232 (1,648,898 in 1901). Including that portion of the Northwest Territories annexed to Quebec in 1912, the area is 706,834 sq. miles and the population 2,005,779. Quebec is the provincial capital, with 78,710 inhabitants in 1911. A lieutenant-governor administers the province—Sir Francois Langelier in 1913 (appointed May 5, 1911). Premier in 1913, Sir Lomer Gouin. See Canada.

QUEENSLAND. A state of the Commonwealth of Australia. Area, 670.500 sq. miles. Population (census of April 3, 1911), 605.813, exclusive of full-blooded aborigines. Brisbane is the capital, with a population (1911) of 11,096; population of the local government area. 35,491; with suburbs, 139,480. The railways of Queensland included three principal lines running west and southwest from the coast as follows: From Brisbane on the south to Cunnamulle (2184 miles); from Rockhampton in the centre to Longreach (912 miles); and from Townsville in the north to Winton and Cloncurry (792 miles). Five other lines open up the interior from the ports of Bowen, Cooktown, Cairns, Mackay, and Normanton. Two other important lines were under construction in 1913. During the last official year there were opened in this state eleven extensions to the railway system which, when completed, will be of gridiron form with the various lines intersectioning the country. The east and west lines had incomplete connections in several cases at their coast ends and 67 miles were under construction for this purpose. At the inland extremities 26-mile lengths for joining up the inland ends were under construction and 11 light feeders, aggregating 244 miles, were also being built. Governor in 1913, Sir William MacGregor (appointed 1909). Premier, Digby Frank Denham. See AUSTRALIA.

QUICKSILVER. The domestic production of quicksilver in 1913, according to preliminary estimates of the United States Geological Survey, was 19,681 flasks of 75 pounds each, valued at $774,054. This is the lowest recorded output since 1860. The output in California, which comprises nearly all the quicksilver produced, was 15,396 flasks, valued at $605,525, a decline of 5128 in quantity, and $257,509 in value, from the quantity and value of 1912. The decrease was due mainly to the falling off in yield from the important mines in Santa Clara County. There was a small output in 1913 in Arizona, Nevada, and Texas. The mined output of these States was 4285 flasks, valued at $168,529.

QUININE. See RABIES.

RABIES. As is well known, patients having rabies in its completely developed form never recover, no remedies having been discovered which will influence the course after the attack has begun. Injection of anti-rabic serum between the receipt of a bite and the onset of the disease has been the only means of warding off death. One case, however, was reported in 1913, in which injection of quinine and urea hydrochloride administered intravenously, cured a well developed case. Moon succeeded in curing animals infected with rabies by means of quinine sulphate, given by mouth. It seems likely that further trial of this drug will prove it a reliable remedy for rabies.

RABINDRA NATH TAGORE. See TAGORE, RABINDRA NATH; and NOBEL PRIZES.

RACING. The 1913 racing season in the United States was noteworthy for the revival of the sport in New York State, the principal meetings being held on the tracks at Belmont Park, Saratoga, Sheepshead Bay, and Gravesend, The winners of the more important events were: Metropolitan Handicap, 1 mile, H. P. Whitney's Whisk Broom II; Saratoga Handicap, 1¼ miles, F. Johnson's Cock o' the Walk; Suburban Handicap, 1¼ miles, H. P. Whitney's Whisk Broom II; Futurity, 6 furlongs, H. P. Whitney's Pennant; Brooklyn Handicap, H. P. Whitney's Whisk Broom II. The English Derby was captured by A. P. Cunliffe's Aboyeur and the French Derby by Dagor. The leading winners among the American owners in 1913 were: H. P. Whitney, $42,860; R. T. Wilson, $19,555; R. F. Carman, $18,330; August Belmont, $17,790; F. Johnson, $14,015; J. L. Holland, $13,075; J. O. Talbot, $11.245.

There were several notable performances on the running turf in 1913. Bringhurst a 2-year-old carrying 109 pounds, went 5½ furlongs at Louisville, Ky., in 1 minute 4⅗ seconds; Iron Mask, also a 2-year-old, while carrying 112 pounds, made the fast time of 1 minute 10⅘ seconds for 6 furlongs at Louisville; Froglegs, a 4-year-old, with 107 pounds, covered 1 mile 20 yards at Louisville in 1 minute 39 seconds and Whisk Broom II, a 5-year-old carrying 139 pounds, ran 1¼ miles at Belmont Park in 2 minutes.

Uhlan for the second successive year carried off the laurels in light harness racing by trotting a mile against time in 1 minute 54½ seconds. Other trotters to distinguish themselves in 1913 were Peter Volo, who covered the mile in 2 minutes 4½ seconds, and Dudie Archdale, whose time for the mile in each of three heats was respectively 2:04¼, 2:04¼, and 2:04½. Two hundred and eighty-three trotters took part in the grand circuit meets, the horses to make the best showings being Cheeney, Lord Dewey, Marigold, Anvil, Dr. Thorne, Tenara, and Etawah. The last two named won for their owners $24,140 and $21,375 respectively. In the pacing events Frank Bogash, Jr., Margot Hal, Branden Direct, and Directum I captured the largest number of firsts. Frank Bogash, Jr., was the biggest winner, $20,341, with Leeta T, $11,625, ranking second.

RACQUETS AND COURT TENNIS. The highest honors in racquets in 1913 went to Jack Soutar of Philadelphia, who defeated Charles Williams of London for the world's professional championship by 6 games to 4. Williams won four of the six games played in London but lost four straight games at Philadelphia. The scores of the games, Soutar's total being given first were: 15—6, 12—15, 11—15, 10—15, 15—9, 6—15, 15—2, 15—8, 15—4, 15—3.

Q. A. Shaw and G. R. Fearing lost the United States doubles title to P. D. Haughton and H. D. Scott, the scores being 15—11, 8—15, 9—15, 18—13, 15—12. H. F. McCormick won the gold racquet trophy by defeating E. Greenshield, 12—15, 15—2, 15—6. The English amateur doubles championship went to B. S. Foster and H. Brougham by default. The English amateur singles title was retained by Foster, who defeated H. W. Latham.

In court tennis Jay Gould successfully defended his singles championship by vanquishing Joshua Crane 6—4, 6—0, 6—2. The world's covered court singles championship was won by A. F. Wilding, Australia, who defeated M. Germot, France 5—7, 6—2, 6—3, 6—1. The doubles event was captured by Max Decugis and Germot, who defeated H. Kleinschroth and C. Bergmann of Germany 7—5, 2—6, 7—9, 6—3, 6—1. The women's singles championship was won by Miss H. Aitchison, who defeated Miss Fenwick 6—4, 6—2.

RADFORD, HARRY V. See POLAR EXPLORATION, ARCTIC.

RADIO-ACTIVE ELEMENTS. See CHEMISTRY; and PHYSICS.

RADIO-ACTIVITY. See PHYSICS, *Radio-Active Elements;* and CHEMISTRY.

RADIO-COMPASS. See WIRELESS TELEGRAPHY AND TELEPHONY.

RADIO-TELEGRAPHY. See WIRELESS TELEGRAPHY AND TELEPHONY.

RADIOTHERAPY. Zimmern, Cottenot, and Dariaux reported remarkable results in the treatment of neuralgia and neuritis with the X-ray. They applied the rays directly over the nerve roots along the spine when the neuralgia was due to disease of the spinal nerves. They found exposure to the X-ray remarkably effectual in curing sciatica, neuralgia, and neuritis of the brachial plexus and in neuralgias of the fifth nerve. In the latter case exposures were made over the region above the zygomatic process at the point of surgical access to the gasserian ganglion. In thirty-one cases treated in this way, many of them severe and rebellious to other forms of therapy, prompt relief and cure were the rule.

RADIUM. The London Radium Institute reported important discoveries in radium-therapy during 1913. The institute owned 4 gm. of this substance, valued at $400,000. A discovery of the highest importance was that radium emanation has exactly the same properties as pure radium and it is thus possible to furnish outside physicians with definite therapeutic quantities, whereas hitherto patients required treatment at the institute. Thus, if a physician needed 20 gm. of radium for use on a patient, its cost would be prohibitive. But for a comparatively trifling sum the institute could supply a plate or tube containing radium emanation which would have the same effect. This plan had the disadvantage, however, that the activity of the emanation falls rapidly, a few days being sufficient to reduce its strength one-half. Water impregnated with radium emanation was also distributed. Over 7000 treatments were given in the institute during the past year. The assistants and nurses have suffered severely from radium burns. The nurses who do most of the actual handling suffer most. During the month of August the institute was closed in order that members of the staff might have a holiday and rest, which was the only cure for these burns.

According to the report of experts of the Bureau of Mines, of the United States Department of the Interior, presented before the American Chemical Society in 1913, by Professor C. L. Parsons, the greater part of the radium produced in Europe originated in America.

Carnotite and pitchblende are the uranium minerals in which radium occurs. Practically the total American output of pitchblende, the richest radium bearing ore, comes from mines in Colorado; at least 20 to 25 tons of high-grade pitchblende had already been exported. The same situation existed with regard to carnotite, nearly all of which was sent abroad. Parsons said that while practically all radium-yielding ore mined in the United States in 1912 was exported, the American deposits were far from inexhaustible, and the United States was depleting its reserve and shipping away material of great value which could not be replaced. Americans were dependent on foreign sources for the refined product, which had become almost prohibitive in price. He urged that the extraction and refining of radium should be undertaken in this country, where many carnotite ores that cannot find a market in Europe were being thrown away and wasted. The industrial journals reported a marked reduction in the price of radium preparations of late. The total production of radium per year was between 2 and 3 gm. In 1911 the radium preparations produced by the Austrian radium praeparatefrabrik amounted to 14.1 gm. containing 2.647 gm. of pure radium chloride, valued at $214,900. Early in 1913 radium bromide sold at $105 per milligram in Germany. In July, however, sales were made in Vienna at about half that price. As a reason for this decrease the fact was advanced that mesothorium, as well as radiothorium, had begun to be employed in place of radium, especially in medicine. Mesothorium more active than radium could be obtained at a cost of only $32 per milligram. Although the life of mesothorium is short, by mixing it with radium salts a long-lived preparation is said to be obtained. Moore and Whittemore of the United States Bureau of Mines reported that all of the 12 Saratoga spring waters examined by them show radio-activity due to dissolved radium salts principally, and slightly to emanations, which is also true of the residue on evaporation. This is exceptional. See SARATOGA SPRINGS.

The employment of radium and mesothorium in uterine cancer received no little impetus from the announcement of remarkable cures by certain clinicians at the German Gynecological Congress held at Halle in May. Wicham and Degrais found that the present dosage was far too small; also that certain rays must be eliminated to attain the best results. The rays emitted by radium and mesothorium vary as to "hardness" or "softness" or penetrating qualities. These various rays, designated alpha, beta, or gamma rays, could be separated by certain filtering substances. The alpha rays, which are soft, are very destructive to tissue; the beta rays, which are hard, penetrate deeply and effect cellular changes without causing necrosis. The alpha rays, therefore, may be advantageously used in superficial cancer, where necrosis is not harmful; while in deep tumors, where necrosis is to be avoided, the beta rays are indicated. The radiations are controlled by enclosing the radium or mesothorium in filters of various substances, such as gold, silver, platinum, aluminum, or rubber.

Dr. H. A. Kelly, of Johns Hopkins University, and Dr. Robert Abbe, of St. Luke's Hospital, New York City, in a lecture before the College of Physicians, Philadelphia, December 15, reported many cures of epithelial cancer made by the use of radium, and representing ten years of work. Dr. Abbe, who had worked with Madame Curie, was the pioneer in the application of radium to disease in this country. Following their startling presentation, it was announced that A. I. Du Pont, of the Du Pont Powder Co. of Wilmington, Del., would coöperate with Dr. Kelly in an attempt to turn over to the United States government for the alleviation of humanity, the pitchblende and carnotite deposits owned by Mr. Du Pont, in Gilpin County, Col. The plan included a central institution where radium should be prepared and whence it should be distributed to clinics and to physicians for use in an attempt to lessen the number of deaths from cancer—75,000 annually.

See also RADIUM and CHEMISTRY.

RADIOTHORIUM. See RADIUM.

RADIUM, URANIUM, AND VANADIUM ORES. It is probable that no other minerals mined at the present time have so large a hold on public attention and at the same time so small a total monetary value as the so-called uranium minerals. This interest is, of course, due not to the minerals as such, nor to the uranium they contain, but to the accompanying radium which is found only with uranium. Up to the latter part of 1913, the interest in radium had been largely academic, on account of the marvelous qualities which it displays when compared with the better known elements. Owing to the apparent cures of cancer abroad by the application of the gamma rays given out by radium, public interest in its production became thoroughly aroused toward the latter part of 1913.

According to the United States Geological Survey, the uranium minerals were produced in commercial quantity in the United States in 1913 only in Colorado and Utah. Although during the year some pitchblende was mined in Colorado, only a few pounds were sold, although 50 dry tons of low-grade material carrying 1.49 per cent. of uranium oxide was shipped to France. The carnotite, a yellow powdery or waxy material found in the sandstones of the high plateau between the Rocky Mountains of Colorado and the San Rafael Swell of Utah, south of the Book Cliffs, furnished the whole production.

Carnotite, as the word is ordinarily used, is a potash or lime uranium vanadate. Several vanadium minerals occur with the carnotite, so that in mining for uranium, a great deal of vanadium is also obtained.

The total mine shipments of uranium and vanadium in 1913, were, equally, about 2140 tons of dry ore, carrying an equivalent of 38 tons of uranium oxide. The vanadium in carnotite ores shipped is equivalent to 914 tons of vanadium oxide.

The Bureau of Mines determined that carnotite carries about 90 per cent., or even a little more, of the theoretical quantity of radium in equilibrium with uranium, which is equal to about one gram in 3000 kilograms of uranium. Assuming that 90 per cent. of the radium is recoverable, this would give the output of 1913 an equivalent of about 8.79 grams of metallic radium, or 16.40 grams of hydrous radium bromide, worth, at $120 a milligram of metallic radium, about $1,055,000. The total value of carnotite ores sold was about $142,000, which represents the uranium value only, as little was paid for the vanadium content. This production was the largest ever made. Over half the quantity of uranium oxide produced was shipped to Europe.

The demand for carnotite at increasing prices induced a large amount of prospecting during the year, and the carnotite bearing area was shown to extend from the Paradox County, westward into the Dry Valley Region of Utah. Farther west and south, deposits of carnotite were found at Crescent and Trachyte creeks, in the Henry Mountains, and also southwest of the mountains.

The Standard Chemical Company actively produced radium at its plants at Cannonsburg, Pa., and the Radium Company of America established a plant and did preliminary work at Sellersville, Pa., during 1913.

See also CHEMISTRY, INDUSTRIAL; MINERALOGY; and RADIOTHERAPY, *Radium.*

RAILWAY ACCIDENTS. During the year 1913 there were a number of serious railway acidents in Europe and the United States so that the general discussion of means for their prevention was even more active than in preceding years. The complexity of the problem was generally recognized and while radical schemes for regulation and legislation were proposed, the futility of many of these was evident and the impossibility of carrying out any but the best considered reforms was apparent. The problem, while almost universal, seemed to be different in different countries and in different sections of the same country, and accidents occurred under conditions where the best equipment and discipline prevailed as well as on poorly constructed and inadequately maintained lines.

In the United States speed and heavy equipment were responsible, in part, for accidents, yet, at the same time, the human element was prominent to a marked degree. Disregard of signals, disobedience of orders, and improper flagging were responsible for serious catastrophes, and the agitation for automatic train stops and other devices continued. There was, of course, the usual discussion as to the comparative frequency of railway accidents in Europe and the United States, and despite the uselessness of attempting comparisons where the data were plainly incommensurable, considerable was written on this subject in the popular press, and, naturally, comparisons were drawn between conditions of operation in Great Britain and in the United States, with inferences that the hazards attending railroad travel in the latter country were infinitely greater than in Great Britain, and in Europe generally. It was stated that in the ten-year period ending with 1909 in Great Britain and Ireland the average record would be one passenger killed to every 72,000,000 carried, while, taking the figures for the United States for 1910, it would appear that one passenger was killed for each 4,900,000 carried. Of course, there must be considered the average length of journey in the two countries, which was not susceptible to accurate analysis, and the fact that in Great Britain the passenger traffic was much denser than in the United States; yet, on the other hand, density of traffic can be attained with safety, as was clearly shown in the operation of the New York subway.

The chief element of safety for British railways was considered to be the block system, which is practically universal, and to which engineers have become accustomed their entire lives. In that country there is usually one system in force, whereas in the United States there may be several systems prevalent on perhaps the same run. Furthermore, while block signaling is universal in England, on December 31, 1913, statistics published showed that in the United States 26,123 miles of road were protected by automatic block signals and 61,062 by manual block signals, a total of about 9000 miles more than December 31, 1912. When this is compared with a total mileage for the United States of over 250,000 miles in operation in 1913, it will be apparent how much remains to be done in this important particular, although block signals do not necessarily insure safety, as was shown by the disastrous collisions described below that occurred in England and France, and also on well equipped lines in the United States.

The Interstate Commerce Commission in the United States during the twelve months ended June 30, 1913, through its inspectors investigated 51 collisions and 25 derailments which caused the death of 283 persons and the injury of 1880. The commission realized that the causes of these accidents were the same as had figured in previous reports, and the similarity of many accidents was striking. The commission observed that either a great majority of

TABULAR STATEMENT OF CASUALTIES ON THE RAILWAYS OF EUROPE

Compiled from Official Statistics contained in the *Statistical Abstract for the Principal Foreign Countries 1900-1910—N.*, 38th Number

Country	Year	Number of passenger kilometers run for each passenger killed	Kilometers	Total length of line in miles	Passengers killed	Passengers injured	Employes killed	Employes injured	Other persons killed	Other persons injured	Total killed	Total injured
Russia in Europe	1909	....	....	33,426	181	933	520	3,015	1,745*	1,791*	2,446	3,739
Great Britain	1911	....	....	23,417	106	2,725	390	5,311	574	309	1,070	8,345
Norway	1911	....	....	1,895	1	2	7	26	8	4	16	32
Sweden	1910	196,814,220	....	8,501	8	14	25	106	59	23	92	203
Denmark †	1911-12	....	1,923†	1,193†	2	1	29	30	...	...	31	31
German Empire	1910	....	....	36,058	97	672	543	1,350	286	316	926	2,338
Netherlands	1910	459,897,000	....	2,250	3	44	26	58	24	17	53	119
Belgium	1911	357,223,621†	....	2,931	14	498	85	555	65	78	164	1,131
France	1910	238,125,723‡	....	25,141	71‡	685‡	320	631	362‖	206‖	753‖	1,522‖
Switzerland	1910	330,418,851	....	2,929	7	90	32	1,341	32	44	71	1,475
Spain	1909	....	....	9,071	11	49	65	2,294	242	279	318	2,622
Italy †	1909	....	....	8,259	43	550	122	1,698	113	160	278	2,408
Austria	1910	....	....	14,013	29	389	112	1,791	153	223	294	2,463
Hungary	1911	88,376,113	....	13,073	54	145	153	265	187	190	394	600
Rumania	1911-12	....	....	2,157	7	33	28	116	69	53	104	262
Japan	1910-11	115,363,000§		5,355	28	296	117	1,135	1,583	571	1,728	2,002

* Includes suicides. † State railways only. ‡ In accidents to trains only. ‖ Excluding suicides but including passengers killed or injured otherwise than in accidents to trains. § Miles.

SUMMARY OF CASUALTIES TO PERSONS IN THE U. S. FOR THE YEARS ENDED JUNE 30, 1913 AND 1912

Item	Steam railways				Electric railways			
	1913		1912		1913		1912	
	Killed	Injured	Killed	Injured	Killed	Inj'd	Killed	Inj'd
Passengers:								
In train accidents	181	8,662	139	9,391	10	1,252	7	1,462
Other causes	222	7,877	179	6,995	26	1,789	28	1,400
Total	403	16,539	318	16,386	36	3,041	35	2,862
Employes on duty:								
In train accidents	557	6,905	596	7,098	18	154	14	144
In coupling accidents	195	3,360	192	3,234	1	19	2	18
Overhead obstructions, etc.	94	1,835	77	1,523	6	34	...	22
Falling from cars, etc.	560	16,005	573	13,874	8	138	13	96
Other causes	1,533	28,514	1,482	23,391	17	203	17	159
Total	2,939	56,619	2,920	49,120	50	548	46	439
Total passengers and employes on duty	3,342	73,158	3,238	65,506	86	3,589	81	3,301
Employes not on duty:								
In train accidents	12	146	20	156	...	5	...	11
In coupling accidents	....	1	.....	2	...	.....	...	.....
Overhead obstructions, etc.	2	9	1	12	...	.....	...	1
Falling from cars, etc.	65	408	53	312	1	19	1	11
Other causes	283	614	241	477	2	4	...	1
Total	362	1,178	315	959	3	28	1	24
Other persons:								
Not trespassing—								
In train accidents	9	110	13	277	1	8	...	7
Other causes	1,279	5,932	1,185	4,746	196	860	118	652
Total	1,288	6,042	1,198	5,023	197	868	118	659
Trespassers—								
In train accidents	90	174	91	151	...	.....	...	.....
Other causes	5,468	6,136	5,343	5,536	117	123	100	128
Total	5,558	6,310	5,434	5,687	117	123	100	128
Total accidents involving train operation	10,550	86,688	10,185	77,175	403	4,608	300	4,112
Industrial accidents to employes not involving train operation	414	113,620	400	92,368	19	798	24	550
Grand total	10,964	200,308	10,585	169,538	422	5,406	324	4,662

these accidents were unavoidable, or that there was a widespread lack of intelligent and well-directed effort to minimize the mistakes of employes in the operation of trains. Simple rules were habitually violated, and operating officers in many cases were cognizant of the habitual disregard, or violation of regulations. The commission believed that there was lack of discipline, or supervision of the work of train service employes, and that as a substitute for man failure some system of automatic control should be developed. The commission believed that the maximum of allowable speed of trains of all roads should be established at a safe limit, and that legislation should be enacted prohibiting the use of wooden cars in high-speed through trains after a certain date, with reasonable time given to the carriers to comply with the provisions of any such law. The commission further believed that it should be authorized to make independent investigations, with respect to all matters affecting the safety of railway travel, so as to enforce recommendations before, rather than conduct investigations after, the occurrence of accidents. It believed, in particular, that there was a need for the most careful investigation and study of steel rails and steel car wheels before being put in service, since a number of accidents had been due to failures of rails in the roadbed, or to the breaking of wheels. Many of the rail failures unquestionably were due to lack of care in the fabrication of rails laid in the track at a time when construction and replacement were very active and suitable tests and records of the materials were not made. This condition, in part, was being remedied by the railways, which for several years had been very active in testing and recording the behavior of new rails, and, while the condition was not entirely satisfactory, still improvement was to be noted.

The "Safety First" campaign was prosecuted vigorously during the year with desired results so, as far as the employes were concerned, a beginning was made in arousing the interest of the public. A large number of fatalities, which apparently showed no decrease, were due to the number of trespassers using the railway right of way as a highway, and lack of observation of due precaution at grade crossings.

In the year ending June 30, 1913, there were 4366 derailments on steam railways, in which 49 persons were killed and 1245 injured, while damage to the road and equipment and the cost of clearing the wrecks amounted to $3,421,037. This record may be compared with that of the previous year, when there were 3847 derailments, in which 68 persons were killed and 1197 were injured. The damage to the road and equipment, and the cost of clearing the wrecks amounting to $3,165,033. In the year 1913 there were 1959 derailments due to defects of roadway, in which 70 persons were killed and 2230 injured, the damage aggregating $1,839,929. In the year 1912, in 1877 derailments, 102 persons were killed and 2766 injured, the damage to road and equipment and the cost of clearing the wrecks amounting to $1,541,460.

Summary of accidents resulting from collisions and derailments for the five years ended June 30, 1913:

Year	Number	Killed	Injured	Damage to road and equipment, and cost of clearing wrecks
1909.........	9,670	606	9,560	7,480.203
1910.........	11,779	773	12,579	9,823,958
1911.........	11,865	785	11.793	9,851.780
1912.........	13,698	772	15,096	11,527,458
1913.........	15,526	791	14,565	13,049,214

Figures for number of persons killed and injured for years prior to 1911 are restricted to passengers and employes on duty.

Among the notable accidents of the year, two stand out with marked prominence, both being rear collisions. On June 12, at Stamford, Connecticut, a heavy passenger train on the New York, New Haven, and Hartford Railroad, crashed into the first section of the westbound express which had stopped to change engines. Six passengers were killed and 18 were injured. The accident was due to the failure of the engineer to bring his train under control after passing the distance signal, and not being able to stop the train on account of the brakes failing to hold when the home signal was set against him. It was found that the air brake equipment of the following train was not in proper condition, and that the engineer was inexperienced in handling a heavy train with a new and powerful locomotive.

The most serious accident of the year was a rear-end collision of passenger trains which took place also on the New York, New Haven, and Hartford Railroad at North Haven, Conn., on September 2, in which three sleeping cars were wrecked, 21 passengers killed and about 30 injured. The leading train ran past the stop signal before it came to a stop. The following train, which was proceeding in the dense fog then prevalent, came in sight of the flagman, the fixed signal, and the rear of the preceding train all at the same moment. The engineer was unable to stop his engine in time and it crashed into the train ahead, with the result that the three sleeping cars were wrecked. On this section of the line there was no distance signal and, while the signaling conditions were not of the best, and were being supplanted by a more modern system, yet they were far from inadequate. Both of these collisions seem to indicate demoralization in the operating departments of the railroad, but, at the same time, they were typical of conditions on other lines.

European Accidents. That the year 1913 was disastrous as regards railway accidents in Europe is shown by several accidents where great loss of life ensued. On November 4, 1913, on the Paris, Lyons, and Mediterranean Railway at Melun, France, 27 miles south of Paris, a south-bound train consisting wholly of mail cars was crossing a north-bound track to enter a loop line when it was struck by a north-bound express passenger train. The latter was proceeding at a rate of about 50 miles an hour and had passed two signals set against it located 3773 feet and 3182 feet respectively behind the point where the collision occurred, as well as a home signal 502 feet behind the crossing. The result of this accident was the killing of 39 passengers and a large number of injured. The cause of the accident was an unexplained overrunning of signals and it took place at a time when the company had decided to equip the line between Paris and Dijon, about 150 miles, with audible cab signals.

This accident naturally aroused considerable discussion in European railway circles, and British authorities claimed that the block signal rules, enforced in Great Britain, would have required the switches to be set so as to divert the mail train to another track, or have protected the passenger train by preventing its passing the last block station.

The record for safe railway transportation in Great Britain was seriously marred during the year 1913 by three disastrous accidents. On September 2, at Aisgill, a desolate spot not far from Hawes Junction on the Midland Railway in the north of the West Riding of Yorkshire, and within a mile of the spot where a Scottish express was wrecked with a loss of twelve lives on December 24, 1910, a collision took place between a London express and another express owing to the disregard of signals, and a standing train was run into by a following train that had passed into a block. Twelve passengers were killed outright and many injured, of whom four subsequently died. Fire broke out at once, but was subdued by the extinguishers, but ten minutes later another fire, which could not be extinguished, seized the wreckage and consumed all combustible material. This fire, it was proved on the official investigation, was due, not to the illuminating gas for lighting the train, but to the ashes in the furnace. The responsibility for the accident rested on the driver of the following train, who disregarded signals while he was oiling his engine and attending to a troublesome injector. The driver, after being acquitted on two inquests, was found guilty of manslaughter on trial and sentenced to two months' imprisonment, but received a royal pardon on October 31. This accident and subsequent proceedings brought the question of the responsibility for the proper discipline of railway servants very prominently into discussion, as an attempt was made by labor unions and other people to lift the blame from the engineer, who had disregarded the signals, to the railway for supplying bad coal for the stalled train.

A second important accident took place on October 15 at St. James Station, Liverpool, where five passengers and the guard were killed and many injured. A train, which had been stopped by the unexplained pulling of the communication cord, was run into by another train and the two rear coaches were telescoped. This accident was due to the failure of the signal man to protect the halted train.

A third accident occurred at the Waterloo Junction Station of the South Eastern and Chatham Railway on October 25, in which three passengers were killed and several injured. This collision, which took place in a fog, was due to an error in signaling.

The record of passengers killed in railway accidents in Great Britain in 1913 was 33, of which the Aisgill accident was responsible for 16. While this is not a favorable record compared with the years immediately preceding, yet in 1906 the total number of passengers killed in train accidents was 59. As in the United States, all of the important accidents in Great Britain were due to errors of judgment, or want of care on the part of employes, or the failure to use, or improper use of, several guards provided by the railways themselves.

These accidents, and others of minor character on English railways, like many in the United States, were due to failures of the human element and there was a demand that mechanical automatic stop devices be introduced. Several English lines, notably the Great Western and the North Eastern, have such cab signals in operation, while the London and South Western and the Midland were testing electrical devices. In France it was decided definitely, largely as a result of the Melun accident, that all companies must employ cab signals in case of overrunning danger signals set against them.

A collision at the railway station at Dvinsk, Russia, on October 6, resulted in the killing of 14 persons and the injury of 28. An express train from Kieff to St. Petersburg ran into an engine standing on the main tracks near the station. Another disastrous European accident occurred at Groningen in the Netherlands on the night of December 24, when an express train for Amsterdam was derailed and eight persons were killed and twelve injured.

See also section *Communications* or *Transportation* under various countries, and under States of the United States; INSURANCE; RAILWAYS; and WORKMEN'S COMPENSATION.

RAILWAYS. In the opinion of many students of railway operation and economics, it was a question whether the daily press in 1913 was leading a change in public opinion in regard to railways or simply recording it; but in either case, there were ample evidences of this change. The editorials that appeared during the year in all classes of daily papers—and the sensational papers and yellow journals contributed their full share—bespeaking fair treatment for the railways, would fill a number of large volumes; and this change in sentiment was, of course, most marked where sentiment had previously been most hostile. Thus, in Texas and in Kansas there had been a change that amounted almost to complete reversal of public opinion. But whether or not this change in sentiment would be drastic enough over the whole country, or, even if drastic, would in itself be sufficient to offset other tendencies which were making toward government ownership, was a matter of pure speculation. Chief of these tendencies was a growing feeling among bankers and investors that the courts will no longer stand between the railways and legislative assumption of managerial powers.

It was once the fashion, not many years before 1913, for railway directors to express the belief that if the case was put in the proper way, and was put squarely up to the United States Supreme Court, the combination of legislative, judicial, and administrative powers with which the Interstate Commerce Commission claimed to be clothed would be held to be unconstitutional. It was thought doubtful in 1913, if, after the decision of the Supreme Court in the Minnesota rate case, in the Missouri rate case, and in the Kansas City Southern accounting case, there would be found any lawyer of reputation who would subscribe for an instant to the belief that the Interstate Commerce Commission law would, on any grounds whatsoever, be attacked as unconstitutional.

While it is perfectly true that the higher courts of both the United States and England act as a restraint on the fluctuations of public opinion, their decisions are fundamentally influenced by the general trend of what might be called the second thoughts of public opinion. In the successive waves of legislation hostile to the railways which have swept over the United States, the railway directors have relied on the courts to protect their property and to continue them in what they consider their inherent rights. One string after another has been followed from the lower court to the higher, from the higher court to the Court of Appeals, and from the Court of Appeals to the Supreme Court of the United States, and, almost without exception, in this court of last resort the theories of the old school of railroad men have met defeat.

THE MINNESOTA RATE CASE was, of course, far the most important of the railroad companies' defeats in the courts. This case, which had been fought from the lowest Federal court and which had been decided in favor of the railroad companies in the highest court, short of the Supreme Court, was decided on June 6, 1913. The State of Minnesota had passed laws reducing both passenger and freight rates within the State. The railway companies operating within Minnesota had obtained injunctions against the enforcement of the reduced passenger rates and had contended that these State-made rates were actually an interference with interstate commerce and were of themselves confiscatory. The main contention, and the one on which the roads relied to protect them from hostile State legislation, was that the fixing of intrastate rates so affected interstate rates that such exercise of power by State legislatures was an invasion of the rights of the federal government. The Supreme Court held unequivocably that "under the established principles governing State action, Minnesota did not transcend the limits of its authority for transcribing the rates here involved, assuming them to be reasonable intrastate rates. It exercised an authority appropriate to its territorial jurisdiction and not opposed to any action thus far taken by Congress." The point about the case, however, which most shook the confidence of railway directors in their belief that the courts of last resort would sustain their doctrine of "to have is to hold," was the court's brushing aside of the argument that *indirectly* the Minnesota rates deprived them of property without due process of law. The court refused to go into the question of indirect effects.

While this decision upheld States' rights to fix interstate rates and was followed by a reduction in various other States of passenger fares to conform with fares ordered either by State commissions or by acts of State legislatures, the Supreme Court decision in the Kansas City Southern case affirmed in sweeping language the power of the Interstate Commerce Commission to regulate not only railway rates, but the actual internal management of railway companies.

THE KANSAS CITY SOUTHERN CASE dealt with an appeal by the railway company from a ruling of the Interstate Commerce Commission, which provided that when a piece of railroad line was abandoned and replaced by another piece of line in a different location, the estimated original cost of the old line should be charged to operating expenses. The railways had claimed the right to either make no charge to its accounts for such abandoned property, or to make the charge to profit and loss account. The case involved far more than the somewhat technical nature of the question would appear to indicate. The Kansas City Southern case was an extreme one, although not more extreme than that of a number of other roads. If it was compelled to charge the cost of the abandoned property to its expenses it could not show its preferred dividend as having been earned, and as a result could not issue and sell certain new securities which it was at the time the suit was brought negotiating for the sale of. In its appeal to the court, the Kansas City squarely raised the question of the power of the commission to extend its regulation so far over the management of corporate affairs as to amount to what was claimed to be confiscation of the right of railroad directors to manage their own business, and the court ruled squarely in favor of the commission.

A POSSIBLE RAILWAY CRISIS. W. M. Acworth, the English economist, made an extended visit to the United States in the fall of 1913, and after some weeks of study of conditions of railway operation in widely separated localities, expressed the belief that this country was drifting directly towards a crisis, in which government ownership would become imperative.

Certain roads, the rich ones, had been able to keep their plant fully abreast of the progress of the art of manufacturing transportation; but, on the other hand, it was not too much to say that the majority of the great railways of the United States were living a hand-to-mouth existence, and if in the fall of 1914 there should be a great increase in the prosperity of the country and in manufacturing output, coincident with very heavy crops, the country would stand in danger of facing a congestion of its railway facilities more severe than it had ever experienced, even in the year 1906. Herein, said critics, lay the possibility and danger that, with the sudden breakdown of transportation machinery at a time when it would mean most to manufacturers and farmers to have their products move promptly, there would come an overwhelming popular demand for the government to take over the railways. (But see *infra.*)

RATE ADVANCE CASE. After months of careful study of conditions, representatives of the railways in official classification territory, (all of the United States east of the Mississippi and north of the Ohio and Potomac) made an application to the Interstate Commerce Commission to have the 1910 rate advance case, in which the roads had been denied the right to a general increase of 10 per cent. in freight, reopened, but were met with refusal. The railways, therefore, formally filed new tariffs showing increases in rates approximating 5 per cent. These new rates were suspended by the commission and the roads ordered to present their evidence to justify the proposed increases. They opened their case before the commission on November 23, 1913, by presenting through Daniel Willard, president of the Baltimore and Ohio, and F. A. Delano, receiver of the Wabash, an outline of what they proposed to show. So clearly was the case presented that after the first two days' hearings, at which he was a deeply interested listener, Mr. Acworth, was ready to admit that possibly he had misread the signs of the times; that, after all, the United States was not drifting into government ownership of the railways.

Even before the important Supreme Court decisions of 1913, the more thoughtful of the leaders among railway executives had recognized the fact that their best hope of more liberal treatment lay, rather in appealing to the court of public opinion than to the law courts. An attempt was being made to work with and not against the Interstate Commerce Commission and such State commissions as are not wholly influenced by political considerations, to the end that the commissions should see and understand not only that certain problems had failed of a satisfactory solution, but that of the vast number of the railroad men's problems, by far the majority, were being successfully worked out. At the annual dinner of the Railway Business Association, in December, 1912, James J. Hill struck the keynote for this campaign of education, and during 1913, the work which Mr. Hill began had been carried on by railway men throughout the country.

THE MANN-ELKINS AMENDMENT to the act to regulate commerce made it incumbent on railways desiring to increase freight rates to convince the Interstate Commerce Commission that such increases are reasonable. The refusal of the commission to permit an increase of freight rates in 1900 was ostensibly based on the fact that the railways were earning net, after the payment of expenses, sufficient to make investment in railway securities attractive, and that higher costs of labor and material were being more than offset through the growth of traffic and the consequent reduction of cost of handling each unit of traffic. Back of this reasoning there was pretty surely a feeling that Mr. Brandeis, in accusing the roads of insufficient utilization of their resources and extravagance in spending of their earnings, was right. Facts have not apparently borne out the economic assumption that an increase in gross business, though accompanied by higher wage rates, would reduce the unit cost of handling business. Prof. W. Z. Ripley, of Harvard University, pointed out that there was a point in the growth and development of a transportation system at which the law of increasing returns suddenly ceased to follow the growth in traffic, and that beyond this point increased traffic meant increased cost in handling each unit of traffic. As long as a single track line is not being worked to its full capacity, each additional ton of freight shipped over this line under ordinary circumstances reduces the unit cost of handling all the traffic, but just as soon as the single track line is worked to its full capacity, then either a double track line has to be built, in which case interest charges and maintenance charges are almost doubled, or else congestion follows. If interest and maintenance charges are suddenly doubled, the unit cost of handling traffic is very greatly increased; if congestion takes place, of course transportation costs per unit are largely increased.

Briefly stated, the roads in the 1913 rate advance case undertook to show that since 1910 there had been a considerable increase in the rates of wages paid, an increase in nearly all other expenses of railway operation, an increase in the interest rates, which a corporation has to pay to secure new capital, and a decrease in the purchasing power of each dollar received in revenue, and that these tendencies had not been offset by the lower unit cost of handling business, due to a greater traffic handled, despite the fact that there had been large gains in efficiency in the use of the transportation plant.

The Interstate Commerce Commission appointed Louis D. Brandeis as its attorney, and while there had not developed up to the end of the year any general opposition on the part of the shippers to the rate advance, certain large shippers were represented by counsel before the commission. It was not until December 29 that any definite indication was given of what line the commission's attorney would pursue in opposing the railway's petition. On almost the last day of December, a list of 78 questions was sent to the railways involved in the rate advance application, and so keen and searching are these questions that it is doubtful if a single railway company can or will answer them in full.

The information required deals with seven classes of questions—those relating to preliminary information; information as to revenues and the conservation thereof; information as to economy; information as to financial history and present standing; information as to the other interests of directors, officers, and employes; information as to sleeping car operations; and general information.

The three following questions are typical: Question 43 asks what investigation has been made by the respondent to determine the relative cost of maintaining heavier locomotives and larger capacity cars and the comparative cost of maintaining steel or steel underframe cars with that of maintaining wooden cars, and calls for the result of such investigations.

Question 63 calls for the following information in regard to contracts and interests of officers or directors in transactions of the company during the year ended June 30, 1913: Description of the transaction; date contracted or performed; parties other than respondent; names of respondent's directors or officers interested; nature of interest, and remarks. With this is to be included a statement in writing from each officer whose name and address is listed under Question 5, as to whether or not he is financially interested in any concern with which the respondent has had transactions during the year ended June 30, 1913.

Question 66 calls for the following detailed information in regard to sleeping car operations borne by the respondent or its subsidiaries during the first and the last year of the life of each contract: Cost of cleaning and washing outside of cars, inside of cars; cost of furnishing and applying lubricating material, ice, heating, lighting, etc.; cost of replacing bell cords, couplers, air brake hose, etc.; payment of amounts determined on a mileage or other basis to cover the use and maintenance of cars; cost of all damages to sleeping cars resulting from accident, except those due to acts of employes of the sleeping car company.

In other words, the railways are asked to show that they come into court with clean hands not only as to efficiency, but also as to freedom from "graft." The answers to these questions will be part of the history of 1914; but some of the happenings in 1913 throw a rather unfortunate light on what may be brought out in specific instances.

RECEIVERSHIPS AND FORECLOSURES. Although there was no panic in 1913, there was for a time a stringency in the money markets, not only of the United States, but of the world, that bordered closely on financial panic. Railroad credit suffered less than commercial credit, but almost throughout the entire year 1913, most railway companies had a hard time refunding maturing securities. The only large railway to go into the hands of a receiver in 1913 was the St. Louis and San Francisco, and its leased line, the Chicago and Eastern Illinois. The receivership of the Frisco, however, cannot be fairly attributed to bad money market conditions, although, of course, this was the immediate cause of the appointment of a receiver. B. F. Yoakum, who is chairman of the board of directors, was engaged in working out a rather ambitious scheme of railway extension into the Southwest. The Frisco, years ago, leased the Chicago and Eastern Illinois, guaranteeing as one of the conditions of the lease 10 per cent. on the C. & E. I. stock. Valuable as was the C. & E. I., both as a coal line and as a connection for the Frisco to Chicago, it did not, largely because of competitive conditions, succeed in paying its own cost each year to the Frisco, and thus there was a drain on Frisco credit from both ends, the Texas and the Chicago end. In addition to this, the laws of Texas were such that it was almost impossible for a foreign corporation to build new lines in that State. The new lines, therefore, were built by private individuals and were sold to the Frisco at a considerable profit. Mr. Yoakum himself acknowledged that he profited in such sales, and whether or not the profit to the promoters was excessive, the drain on the St. Louis and San Francisco credit was excessive. In his efforts to carry out his plans, Mr. Yoakum had "shopped" around among New York, Boston, and foreign bankers selling blocks of securities wherever he could get the best price. The result was, that when the Frisco happened to have a considerable block of obligations falling due at a time when money was tight, no single banking house felt under moral or any other obligations to take care of the property, or if they were willing to take care of it it was on terms which Mr. Yoakum refused to accept.

Including the St. Louis and San Francisco and the Chicago and Eastern Illinois, and their subsidiaries (the subsidiaries not counted separately), there were 17 steam railways placed in the hands of receivers, with a total mileage of 9020, and a total capitalization of $477,780,820; and the *Railway Age Gazette*, from which the above figures were taken, showed that 6 roads with 1159 miles were sold under foreclosure, with a total capitalization of $86,163,850.

THE NEW ENGLAND SITUATION. The New Haven affairs had been slowly coming to a crisis for about three years. The New York, New Haven, and Hartford Railroad Company had been using its very large credit to buy potentially competing trolley lines all through New England, and to buy boat lines which parallel its rail lines from New York into New England and Canada, and to strengthen its entrance into New York City. The New Haven was not only financed by the banking firm of J. P. Morgan & Company, but was very largely controlled by members of that firm and their associates, who were the guiding force on the board of directors. Charles S. Mellen was president, and it is problematical as to how far the New England situation as it developed was the result of Mr. Mellen's own ambitions and how far it was the result of the unskillful carrying out of what Mr. Mellen conceived to be the Morgan idea of the development of the New England transportation system. The point was, that the working out of these plans was not only against public opinion, but apparently was unskillfully done. Too much was paid for trolley properties. The New York, Westchester, and Boston, the double-track electric road into New York, which the New Haven financed, valuable as it would undoubtedly be some time, was too great a strain on New Haven credit. The economical and effective operation of the New Haven as a railroad property was neglected; labor unionism was permitted to interfere with the best efforts of the operating officers directly in charge; and to cap all this, Mr. Mellen had an unfortunate personality which militated strongly against the success of his own plans in antagonizing the press and the public of the territory which the New Haven serves. Combined with this, there was also a series of fatal accidents which the public generally attributed to bad management and which were pretty surely, at least in part, due to lack of discipline. The result was the retirement of Mr. Mellen as president, the election of Mr. Elliott, who had been chairman of the Northern Pacific, as chairman of the board of the New York, New Haven, and Hartford system, and the election of James H. Hustis as president of the New York, New Haven, and Hartford Railroad without jurisdiction over steamship or trolley lines. Mr. Hustis had been chief executive officer of the Boston and Albany, and was not only liked, but deeply respected and admired quite universally throughout New England. As president of the New York, New Haven, and Hartford, Mr. Hustis will devote himself exclusively to the management and operation of the railroad property.

This was followed by the cutting of the New Haven dividend from 8 per cent. to 6 per cent., and in December the passing of a quarterly dividend entirely. The New Haven had 23,968 stockholders at the end of 1913.

As the situation stood at the end of 1913, the Boston and Maine, controlled by the New Haven, was on the verge of bankruptcy; the New Haven was showing a deficit, after the payment of interest charges even without any dividend charges, and New Haven credit was in danger of very serious hurt if the company's bonds should no longer be legal investments for Massachusetts savings banks because the company had failed for a year to pay dividends.

CHANGES IN OWNERSHIP AND CONTROL. At about the time of Mr. Mellen's resignation, it became necessary to provide for refunding New Haven notes falling due early in 1914. The directors, therefore, voted to issue and offer at par to stockholders through the company's bankers, J. P. Morgan & Company, $67,522,000 convertible debenture 6 per cent. bonds. The bankers' commission was fixed at 2½ per cent. There was considerable bitter criticism of the bankers acting both as directors and as underwriters. J. P. Morgan & Company apparently were somewhat sensitive to this criticism, and while not changing the underwriting agreement, served notice that they would terminate the agreement under which they acted as sole bankers for the New Haven. This was followed, late in December, by the announcement that all members of the firm had resigned as directors of the New York, New Haven, and Hartford and the New York Central and Hudson River and of the American Telephone & Telegraph Company.

Ranking in importance with the withdrawal of Morgan & Company from the boards of two of the railways most closely connected with their interest was the working out of the Harriman roads' dissolution. The decree of the Supreme Court ordering the Union Pacific to sell its $126,650,000 of Southern Pacific stock was handed down in 1912, but the actual working out of the decree took place in 1913. The first plan provided for an outright sale at par of the entire $126,650,000 Southern Pacific stock, the Southern Pacific agreeing to sell to the Union Pacific the Central Pacific, which runs from Salt Lake City to San Francisco, and to gain possession of which was one of the chief reasons that is supposed to have actuated E. H. Harriman in his purchase for the Union Pacific of control of the Southern Pacific. The sale of this great block of stock at par was underwritten by an international syndicate of bankers. There was, however, a provision by which the Union Pacific and Southern Pacific were to continue to use a part of the Central Pacific lying wholly within the State of California to the exclusion of any other railway. The California railway commission refused to sanction this agreement and the entire deal fell through. The interesting point about this was that when the underwriting was done in February, the syndicate was eagerly subscribed to and it was generally considered a great privilege among bankers to have been asked to participate. By the time, April, that final action by the California commission made the consummation of the plan impossible, there was probably not a single participant who did not have a feeling of relief.

The final plan, which was adopted, provided for the sale of $38,292,400 of the Southern Pacific stock to the Pennsylvania Railroad in exchange for $21,273,000 preferred stock and an equal amount of common stock of the Baltimore and Ohio and the sale of the remaining $88,357,600 Southern Pacific stock to the Union Pacific stockholders at a price which was equivalent to 88. The Union Pacific stockholders, however, were not permitted to come into possession of the stock certificates of the Southern Pacific nor did they have any voting rights. The stock was held by a New York trust company under direction of the board and Union Pacific stockholders received what were called certificates of ownership. These they were at liberty to sell, and if bought by some one who was not a stockholder in Union Pacific could be exchanged by presentation at the trust company for the stock of the Southern Pacific itself. In this way the court went further than it had in the dissolution of either the Standard Oil Company or the American Tobacco Company, and tried to provide a means by which not only should one corporation be prevented from controlling another, but the same individuals should not control two competing corporations. This plan was worked out satisfactorily, and by the end of the year the greater part of the Southern Pacific stock had been taken by people or corporations who were not stockholders of the Union Pacific; but it was significant that what was generally spoken of as the success of this plan was the sale at 88 of stock paying 6 per cent. on par and earning about 10 per cent.

WAGE DISPUTES. There were two important labor arbitration proceedings in 1913, one, that of the firemen under the old Erdman act, and the other, that of the trainmen under the amendment to this act known as the Newlands act. In the case of the firemen, the award was made by three arbirators, who represented respectively the employes, the railroad managements, and the public. The result of this arbitration was a compromise by which the firemen received on most of the eastern roads fairly substantial increases in rates of pay, and following this award the unions representing the trainmen at once presented their demands. The trainmen had received increases in pay in 1910, and railway managers generally felt that if the progressive increases to organized labor at the expense of the railway stockholder and of the unorganized employes was to ever be brought to an end, the settlement of the trainmen's demands was an auspicious time to do it. The Erdman act had proved unsatisfactory both to the labor leaders and to the managers, it having placed too great a responsibility on a single man and made the award in any arbitration proceeding almost inevitably a compromise. Labor leaders, railway men, and the National Civic Federation, working together, drafted a new bill providing for a permanent board of conciliation and mediation, which board consisted of a chairman and two members, the president appointing the chairman and members of the board which should endeavor to bring about an agreement between managers and employes without a formal arbitration proceeding. Failing in this, however, they were empowered to appoint a board of arbitration to consist of a chairman and five members, which was to hear both sides of a controversy and the finding of which was to be compulsory. The agreement, however, to arbitrate at all is not made compulsory by the law. This bill was hurried through Congress and signed, and immediately thereafter the demands of the trainmen were brought before the board, of which Judge Chambers was appointed chairman and Judge Knapp, formerly chairman of the Interstate Commerce Commission, one member and the other membership left vacant. The committee, failing to bring about any agreement, selected an arbitration board, of which Seth Low, president of the National Civic Federation, was chairman, the other members being J. H. Finley, State commissioner of education of New York; W. W. Atterbury, of the Pennsylvania; A. H. Smith then vice-president of the New York Central; D. L. Cease and L. C. Sheppard. The arbitration board confined its consideration of the demands of the trainmen to the question of whether or not the cost of living of employes had increased, and, if so, to what extent since 1910? They found that in general the cost of living had increased by about 7 per cent. and they therefore awarded an increase in wages on this basis.

See also ARBITRATION AND CONCILIATION, INDUSTRIAL.

CONSTRUCTION. The total mileage of new first track built in the United States in 1913, as shown by the annual compilation made by the *Railway Age Gazette,* was 3071.12 miles.

In addition there was 1263.88 miles of second track, 88.37 miles of third track, and 43.26 miles of fourth and other tracks. This compares with 2997.08 miles of first track built in 1912, 1072.94 miles of second track, 67.43 miles of third track, and 74.38 miles of fourth and other tracks. Almost the entire amount of the new mileage built was short extensions of existing lines, the longest continuous line built being the extension of the Chicago, Milwaukee, and St. Paul from Great Falls, Mont., to Lewistown, 135 miles. The rather interesting fact about this new construction in 1913 is that whereas in the United States the first track mileage built was only very slightly more in 1913 than in 1912, in Canada there was 3012.96 miles of first track built in 1913, as against 2232.10 miles in 1912. It is not surprising that the United States should show such a small amount of first track mileage built, nor that Canada should be making such rapid gains, although it is interesting to note that for the first time in the history of railroad building new first track mileage built in a country other than the United States almost equalled the building in the United States. It is, however, notable, that while Canada is about to take the leading place for new first track built, the United States is not making a proportionate gain over corresponding years in second track built. It is second, third, and fourth track rather than new railways that the eastern part of the United States needs, and even many parts of the West and South, for the proper development of the country's new business.

The following table, compiled from reports of State commissions, shows road mileage (first track mileage) in operation at the date of the last report, either December 31, 1912, or June 30, 1913, for each State in the Union having a railroad commission:

Alabama	.....	Nebraska	6,204
Arizona	2,299	Nevada	2,314
Arkansas	4,798	New Hampshire	1,217
California	7,103	New Jersey	2,431
Colorado	5,653	New Mexico	No report
Connecticut	1,000	New York	8,384
Delaware	No report	North Carolina	4,657
Florida	3,596	North Dakota	5,925
Georgia	7,095	Ohio	9,233
Idaho	2,643	Oklahoma	6,324
Illinois	12,148	Oregon	.....
Indiana	2,053	Pennsylvania	11,881
Iowa	9,911	Rhode Island	2,098
Kansas	.....	South Carolina	3,502
Kentucky	3,744	Tennessee	4,016
Louisiana	5,257	Texas	15,284
Maine	2,284	Utah	No report
Maryland	8,284	Vermont	1,106
Massachusetts	7,008	Virginia	4,517
Michigan	9,022	Washington	5,934
Minnesota	8,863	West Virginia	3,606
Mississippi	4,212	Wisconsin	7,583
Missouri	8,064	Wyoming	1,750
Montana	4,377		

CARS AND LOCOMOTIVES ORDERED. The total number of locomotives ordered in 1913 was 3467, passenger cars, 3179, and freight cars, 146,732. This compares with 4515 locomotives ordered in 1912, 3642 passenger cars, and 234,758 freight cars.

See also RAILWAY ACCIDENTS.

RAINER, ARCHDUKE. An Austrian nobleman and soldier, died January 27, 1913. He was born at Milan in 1827, his father being a brother of the grandfather of Emperor Francis Joseph. He was also related to the reigning house of Italy, his mother, Elizabeth, having been a princess of the House of Savoy. His sister, Archduchess Adelaide, was the wife of King Victor Emmanuel of Italy. He was married in 1852 to Princess Marie Caroline of Austria. The Archduke Rainer was one of the best known of Austrian soldiers, and in 1861 he became field marshal. He rendered great service by reorganizing the militia, which he commanded for many years. As a patron of the arts and sciences, he was largely responsible for the great museum of science and art at Vienna. In 1899 he presented 100,000 valuable manuscripts to the Royal Library. He had no children, but adopted his niece and godchild, Maria Raineria, Countess Waldeck, the daughter of Archduke Henri and of his morganatic wife, Leopaldine.

RALPH, ELSIE (REASONER). An American sculptor and journalist, died May 10, 1913. She was born in 1883. During part of the Cuban Rebellion and the Spanish-American War she was the correspondent of the Associated Press in Cuba, and later she went to Europe and reported the coronation of Queen Wilhelmina at The Hague. For two years she was art critic in London for the New York *Sun*. She married Lester Ralph, an artist, and as a pastime took up modeling. Moving to London, in a little more than a year she had become well-known as a sculptor, not only there but in other capitals of Europe. In 1911 she exhibited "The Dance of Life," which had the place of honor in the sculpture division at the exhibition in the Royal Academy.

RAMPOLLA, MARIANO. A Roman Catholic cardinal, died December 16, 1913. He was born at Polizzi, Sicily, in 1843. After completing his studies at Capranica College at Rome and taking holy orders, he studied diplomacy in the College of Ecclesiastical Nobles and was later appointed councilor to the papal nunciature at Madrid. In 1865 he was created titular archbishop of Heracles and returned to Madrid as nuncio, but he was soon made a cardinal and appointed papal secretary of state under Leo XIII. In this position he became one of the most important political figures in Europe. He was held personally responsible for the friendly agreement between France and Russia, and for the opposition to the powers of the Triple Alliance. This is said to have been the cause of Austria's veto, when, at the death of Leo XIII., he was the favorite choice for Pope. This action of Austria resulted in the election of Cardinal Sato, who became Pope Pius X. on August 4, 1903. Cardinal Rampolla resigned as secretary of state and was succeeded by Cardinal Merry del Val. After the election of Pius X., Cardinal Rampolla lived in retirement near the Vatican. He is said to have taken his defeat much to heart and for many months to have kept himself hidden from public eyes, except for infrequent appearances to officiate at St. Peter's, of which he was the archpriest. He gave himself over to the study of sacred history and archæology, and wrote the life of St. Melania. He also wrote a large number of circular letters upholding the temporal power of the Pope, and endeavored to convince other countries that the church was oppressed by the Italian government.

RANSDELL, Joseph Eugene. United States senator (Democrat) from Louisiana. He was born in Alexandria, La., in 1858, and was educated in the public schools of that city and at Union College, where he graduated in 1882. The following year he was admitted to the bar. Elected district attorney for the eighth judicial district of Louisiana in 1884, he held this office for twelve years. A member of the State constitutional convention in 1898, the following year he was elected to the Fifty-sixth Congress, and served continuously in the House of Representatives until the close of the Sixty-second Congress. He received the nomination for United States senator in a Democratic primary election held June 23, 1912, and was elected by the legislature to succeed Senator Foster, on May 21, 1912. He took his seat in the Senate on March 4. 1913. His term of office expires 1919.

RAPID TRANSIT. The providing of increased facilities for urban and suburban transportation continued a leading question in practically all the great capitals of the world and especially in the large cities of America. The concentration of population and industries in cities had produced congestion which, in the great majority of cases, was far in excess of the facilities available. In certain cases construction was actually under way, as in New York and Boston, while in others the question, which was one of vast importance and intimately connected with municipal economy and finance, was under careful consideration.

The New York Dual Subway System. On March 19, 1913, the City of New York, by the public service commission for the first district, entered into separate contracts with the Interborough Rapid Transit Company, and the New York Municipal Railway Company, a corporation formed for this purpose by the Brooklyn Rapid Transit Company, which controlled the existing system of elevated railroads in Brooklyn, for the construction, equipment, and operation of the dual system which had been laid out and arranged, and had met with the approval of the city authorities. At the date when the contracts were signed, the existing trackage of subway and elevated was 296 miles. Of this, the Interborough Company in Manhattan operated 191 miles, and the Brooklyn Company 105 miles. The new lines provided for under the dual system were to add 324.9 miles of track, making a total of 620.9 miles, affording a carrying capacity of 3,000,000,000 passengers per annum. This new system was to cost $366,000,000, of which the city of New York was to supply $200,000,000, all of which would be devoted to construction work upon lines owned by the city, while the Interborough Company would contribute to the cost of these lines, $58,000,000 and the New York Municipal Railway Corporation, about $14,000,000. The companies were to bear the expense of new equipment for both subway and elevated lines, but the equipment for the city-owned lines was to be owned by the city. This would make an extra expense of about $47,000,000 for the construction and equipment of the city-owned lines, while the Brooklyn Company was to expend practically the same amount for new elevated construction and equipment. This all was in addition to the investment of between $55,000,000 and $56,000,000, which the city of New York had in the existing subway, and $48,000,000 which the Interborough Rapid Transit Company had invested in its equipment.

The dual system provided for the enlargement and development of both of the present systems controlled by these two companies. In the Interborough's territory the existing subway was to be extended on the east side from Park Avenue and Forty-second Street north through Lexington Avenue to the Bronx, and on the west side from Forty-second Street and Broadway south through Seventh Avenue and other streets to the lower part of Manhattan to a new tunnel connection with the subway line in Brooklyn. The present subway was to be extended in Brooklyn to New Lots Avenue, with a branch from Eastern Parkway to Flatbush Avenue. The Lexington Avenue subway was to have two branches in the Bronx, one running up Jerome Avenue to Woodlawn Road and the other to Pelham Bay Park, both being elevated railroads in the outlying districts. The existing subway terminating at Bronx Park was to be extended to Two Hundred and Forty-first Street. The present system of elevated railroads was to be extended in the Bronx and connections developed between the subways. The Steinway tunnel under the East River at Forty-second Street was to be extended across Forty-second Street to Times Square and connect in Queensborough with the Astoria and Corona lines.

The other party to the contract with the city, the Brooklyn Rapid Transit Company, was to receive a system of subways in Manhattan so that it could distribute its passengers through the territory south of Fifty-ninth Street, and relieve the congestion at the Manhattan terminals of the bridges.

The most important subway to be constructed under this plan was to begin at the Queensborough bridge and run westerly through Fifty-ninth and Sixtieth streets to Seventh Avenue, and south through Seventh Avenue to Forty-second Street, whence it would run down Broadway to Vesey Street, and thence under private property and through Church Street and Trinity Place to a tunnel under the East River from Whitehall Street, Manhattan, to Montague Street, Brooklyn, whence it would be extended to connect with the Fourth Avenue subway. This tunnel was to be connected also with the Centre Street line, which runs between the Williamsburg and Brooklyn bridges, by a tunnel down Nassau Street to Broad Street.

In Brooklyn an extensive system of new elevated railroads was to be constructed and the Fourth Avenue subway extended from the Manhattan bridge to Eighty-sixth Street and Fourth Avenue. Other subways were to be constructed to connect with existing lines and the present elevated lines were to be extended and amplified.

A subway was to be constructed under the East River from Fourteenth Street, Manhattan, to Greenpoint in East New York, connecting with the Broadway and Cypress Hill lines of the existing elevated system. A five-cent fare was to be charged for a continuous passage on each system with the right of transfer on the system, but not from one system to another, and the longest ride possible for one fare and without change of cars would be a distance of about twenty-six miles.

The contract signed contemplated that the entire system would be in operation in the year 1917, but as each part was furnished it would be used immediately where feasible.

The first part of the new system placed in operation was the Centre Street loop, which was put in service on August 4, 1913, by the New York Municipal Railway Corporation under a contract with that company, whereby the Broadway and Myrtle Avenue elevated lines in Brooklyn coming to Manhattan by the Williamsburg bridge, now come down town through the loop instead of stopping at the Manhattan end of the bridge.

At the time the dual system contract was signed on March 19, the city of New York had expended, or obligated itself to expend upon the additional subways decided upon by the city before the planning of the dual system, $75,637,628.84, and of this amount, $40,501,991 applied to lines for operation by the New York Municipal Railway Corporation and $35,135,637.84 to lines for operation by the Interborough Rapid Transit Company. On December 9, 1913, the total amount of contracts on the dual system awarded, was $88,511,928.42, divided between contracts on lines for operation by the New York Municipal Railway Corporation to the amount of $46,691,797.08, and on lines for operation by the Interborough Rapid Transit Company, to the amount of $41,815,272.34. The Fourth Avenue subway in Brooklyn and the Centre Street loop subway in Manhattan were about completed at the end of the year, and work on the Broadway line in lower Manhattan was in progress. The Lexington Avenue line north of Forty-second Street was well under way, especially the sections north of Fifty-third Street. The contracts for the Seventh Avenue subway in Manhattan were awarded in November, 1913, as were also the contracts for elevated lines in Queens and in the Bronx and Brooklyn, in addition to the reconstruction of the various elevated lines in Brooklyn. The engineers of the public service commission were at work on plans for the two proposed tunnels, which were designed to run under the East River.

In the construction of the new subways, both engineers and contractors benefited by the experiences in the older subways, and many modifications that have been necessary, or desirable, were incorporated. The double-deck construction of subways adopted for certain lines proceeded without difficulty, while the open cut and rock excavation presented little difficulty, and was being accomplished with a minimum of inconvenience to the users of the streets and owners of adjoining property. The tunnels under the Harlem River were being built during the year by excavation and sinking the tubes in the river bed, and this work was being accomplished satisfactorily, and without serious or unforeseen obstacles.

The contracts finally signed, without doubt, represented probably more study and discussion than ever had been expended on a municipal project. Much bitterness was exhibited in the preliminary arguments and the final outcome was in doubt until almost the time of the signing of the contracts. On February 3, 1913, Governor Sulzer appointed Edward E. McCall, then a Supreme Court justice, as chairman of the public service commission for the first district to succeed William R. Willcox, whose term had expired on February 1, and the new chairman joined with two other commissioners in voting affirmatively for the dual system contract as modified by more recent developments. Of the other two commissioners, one was present at the time of the vote and the other voted in the negative. The new contract was approved by the board of estimate on March 18, and on the following day was formally executed so that an important chapter in planning this huge urban transportation project was closed. Subsequent developments naturally were concerned with actual problems of construction and the linking in with the existing systems of the various elements as they were constructed.

An innovation in the method of providing for the construction of the New York City subway system worthy of mention was introduced by the Public Service Commission. Instead of letting contracts for the work and allowing the contractor to purchase the materials, as have been the rules hitherto, the commission itself will advertise for bids for the supply of such materials and after awarding the contract will make another contract with contractors experienced in building railroads to do the work of track laying, etc. In the new dual system there was involved 324 miles of single-track construction and the work on city owned lines involved 260 miles, so that as 100-pound rails were specified, the commission intended to purchase at least 45,760 tons.

Boston Subway System. During the year there was under construction the Boylston Street subway through the filled lands of the Back Bay district in the city of Boston. This subway extends from a point near the junction of Commonwealth Avenue and Beacon Street to the corner of Park and Tremont streets, a distance of nearly two miles, with stations at Massachusetts Avenue, at Copley Square, at, or near, the corner of Boylston and Tremont streets, and at Park Street. It was proposed to change the terminus from Park Street to Post Office Square, but this had not been decided up to the end of the year, and a temporary connection with Tremont Street subway at Park Square was under construction. The portion under contract during the year consisted of a reinforced concrete two-track structure, 8000 feet in length, with stations at Massachusetts Avenue and at Copley Square in accordance with the terms of the act of January 30, 1911, ground being broken for the first of the five contract sections in March, 1912. At the end of the year the project was about 80 per cent. completed, and its operation early in the summer of 1914 was anticipated. The construction through made lands, much of which, together with its buildings, had settled in the course of time, presented unusual problems, and on account of the depth of cover over the tubes and the unstable character of the earth beneath, a continuous centre wall was used for a large portion of the road.

Work was also in progress on the East Boston tunnel extension whose Boston terminal was located at Court and Tremont streets. The extension under construction involved lowering part of the existing tunnel between Washington

Street and Scollay Square, and extending it under the present Tremont Street subway along Court and Cambridge streets, coming to the surface at an incline on Cambridge Street near North Russell Street, so as to permit a track connection between the Cambridge Street surface cars through the tunnel to East Boston. A loop was also to be built at Bowdoin Square so that some of the cars could turn there and go back to East Boston through the tunnel. This line involves about 2300 feet of construction and about half was under way during the year,—the Washington Street part, including the change of grade in the old tunnel, and the loop. This work was undertaken on the basis of cost, plus 10 per cent.

Another tunnel in the Boston rapid transit system was to extend the Cambridge subway at Tremont and Winter streets to South Boston and Dorchester, forming a through line from Harvard Square, Cambridge, to Andrew Square, at South Boston, extending from the Park Street station of the subway along Winter and Summer streets by the South Station, and thence under the Fort Point Channel to Dorchester Avenue, along which it will continue to Andrew Square, South Boston. At the end of the year the easterly end was under construction and the portion between the Park Street station and the Summer Street station was completed, while plans were under way for that part extending from the Summer Station to the station at Dewey Square. The tunnel under the Fort Point Channel would have to be excavated by the shield method, but the remainder of the work was of the regular cut-and-cover type.

Buenos Aires Subway System. During the year there was under construction in Buenos Aires by the Anglo-Argentine Tramways Company, a corporation owned and managed principally by Germans, a double-track subway in two sections, having a combined length of nearly five miles. Most of the construction was in open cut and steam shovels were used, the material penetrated consisting of a hard, indurated clay line below a top surface of loam and earth. On December 1 about three miles of line was officially opened. It represented a cost including rolling stock of about $17,000,000. Other subways were being planned for this South American metropolis and, at the same time, improvements of the railways systems which involve the elimination of grade crossings and the electrification of the suburban zones.

RAYMOND, Charles Walker. An American soldier, died May 3, 1913. Born in Hartford, Conn., in 1842, he graduated from the Brooklyn Polytechnic Institute in 1861, and from the United States Military Academy in 1865. In the last-named year he was appointed first lieutenant in the Engineers Corps; rose to be colonel in 1904; and was retired with the rank of brigadier general in that year. In the course of his service in the army he was engaged in the exploration of the Yukon River; was assistant professor of natural and experimental philosophy at the United States Military Academy; commanded the United States expedition to Northern Tasmania to observe the transit of Venus in 1874; and was intructor in military engineering, military signaling, and telegraphing at the United States Military Academy in 1878. After his retirement from the army he was chairman of the board of engineers in charge of the construction of the tunnels for the Pennsylvania Railroad in New York City.

RECALL, The. See Electoral Reform.

RECLAMATION OF LAND. By the act of Congress approved June 17, 1902, and known as the "Reclamation act," a fund for the reclamation of arid lands was created from the moneys received from the sale of public lands in certain Western States and Territories. The actual receipts from this source to June 30, 1913, were $81,819,614, and the net investment of this fund in reclamation works on the same date amounted to $76,233,056. No new reclamation projects under this law have been undertaken since 1906, but prior to that date 25 primary projects had been undertaken, the net investment in which on June 30, 1913, amounted to $5,174,283. The names of these projects and the amount invested are shown in the following table:

State	Project	Net investment
Arizona	Salt River	$ 9,883,321.41
Arizona-California	Yuma	6,210,894.01
California	Orland	570,653.44
Colorado	Grand Valley	451,931.11
Do	Uncompahgre	5,050,987.38
Idaho	Boisé	8,155,463.02
Do	Minidoka	4,296,711.67
Kansas	Garden City	380,954.77
Montana	Huntley	962,344.23
Do	Milk River	1,631,076.89
Do	Sun River	1,013,072.87
Montana-North Dakota	Lower Yellowstone	3,070,947.86
Nebraska-Wyoming	North Platte	5,806,433.37
Nevada	Truckee-Carson	5,029,591.66
New Mexico	Carlsbad	732,910.61
Do	Hondo	358,913.60
New Mexico-Texas	Rio Grande	1,690,604.78
North Dakota	North Dakota pumping	911,205.97
Oregon	Umatilla	1,365,259.84
Oregon-California	Klamath	2,083,143.40
South Dakota	Belle Fourche	3,104,846.96
Utah	Strawberry Valley	2,271,131.13
Washington	Okanogan	582,653.33
Do	Yakima	5,731,143.14
Wyoming	Shoshone	3,828,086.81
Total primary projects		75,174,283.26
Secondary projects		592,412.23
Arizona-California, Colorado River		43,710.00

State	Net investment
Oklahoma-Cimarron	11,723.99
Oregon, Central Oregon	40,366.67
Townsite development	16,916.04
General	39,272.27
Indian:	
Blackfeet, Montana, $79,935.04; Flathead, Montana, $99,094.28; Fort Peck, Montana, $54,854.44.	233,883.76
Miscellaneous preliminary investigations	80,488.73
Total	$76,233,056.95

Included in this table are the expenditures on investigations of various so-called secondary projects or enterprises which have not been found to be such as to warrant immediate undertaking. The estimated area of these projects when completed is 2,983,440 acres. The area for which service is prepared to supply water is 1,299,956 acres. The total reservoir capacity is 5,051,210 acre-feet. Canals have been built to a total length of 7961 miles, and there are 77 miles of tunnel. The total number of farms irrigated and cropped in 1912-13 is 16,554, and the value of the crops was $14,479,368. The development of irrigated areas has been a source of disappointment to those who have them in charge. This is due largely to the spirit of speculation aroused by the opportunities offered through the reclamation of arid lands whether by public or private capital. This has been aroused by the rapid advances in the price of land wherever these projects are planned or completed. The prospective profits to be derived from the reclamation of otherwise worthless lands by the storage of waste waters have been among the most alluring of inducements to the investor. The results already attained show, however, that there has been no one class of investments which has uniformly been so unprofitable. The reason for this is that the success of the enterprise depends upon the prompt and successful development of agriculture within the reclaimed area. This development has rarely followed the construction of the works. In all plans for reclamation, the assumption has been that when the water was available there would not be merely an immediate increase in land prices, but these lands would be readily taken by competent farmers who would at once begin to produce crops, by the sale of which the money invested could be repaid. In all cases, however, there has been a very slow return. Although the lands have been advanced rapidly in price, this advance has been based upon the hopes of future productivity rather than upon actual crop returns. The proper development and use of these reclaimed lands is one of the most serious problems which has been presented to the Department of the Interior.

RED CROSS, AMERICAN NATIONAL. The year 1913 was the busiest in the history of the association in the character, magnitude, and number of its relief operations and in the work of the first aid department, while gratifying progress was reported in the growth of the town and country nursing service. The activities of the society during the year included relief services at Dayton, O., at the time of the floods, in Omaha in the tornado which destroyed a large portion of that city, in the *Volturno* disaster at sea, and in connection with Mexico. Medals in recognition of valuable unremunerated personal services in connection with the Red Cross were awarded to many persons, including Governor Cox of Ohio, John H. Patterson of Dayton, O., for services during the floods; Mrs. Edith H. Rockhill, Mr. John B. Jackson, and others, for work in the Balkan countries; and Hammon H. Buck, for services during the eruption of the Taal volcano in the Philippines. Medals also were given to others for general services. The Red Cross Christmas seals were again sold during the Christmas holidays. The proceeds of this sale are used in the campaign against tuberculosis. The sales approximated 40,000,000, for which $400,000 were paid.

The erection of a new building for the American Red Cross Society was assured in 1913. Congress passed a law providing for $400,000 for the erection of a memorial building to the women of the Civil War without regard to their sympathies or allegiance. If it is to become effective, there must be added to this appropriation $300,000 by the American Red Cross in order that the memorial may cost at least $700,000. At the end of the year this fund will be completed. The building is to be used as headquarters for the Red Cross Society.

The Red Cross town and country nursing service increased the field of its operations during the year. Nurses are found in Vermont, Massachusetts, Ohio, New York, New Jersey, Maryland, Virginia, West Virginia, Kentucky, and South Carolina. In order to explain and illustrate the work of the first aid department of the society, representatives of the Red Cross visited many railroad headquarters and mines during the year. There was an exhibit at the exposition at Knoxville, illustrating the methods of work. The Red Cross took an active part in the withdrawal of American citizens from Mexico. Aid was also furnished to inhabitants of the city of Mexico after the revolution in February, 1913.

The annual meeting of the association was held on December 10, 1913. President Wilson presided over one session and made a brief address. The officers elected for 1914 were as follows: President, Hon. Woodrow Wilson; vice-president, John Skelton Williams; national director, Ernest P. Bicknell; secretary, Charles L. Magee.

REDFIELD, WILLIAM C. An American public official. Secretary of Commerce in the cabinet of President Wilson. He was born in Albany, New York, in 1858 and was educated in the public schools of Pittsfield, Mass., whence he removed to Brooklyn, N. Y., and engaged in business, soon identifying himself with many important industries in that city. In 1902-03 he was commissioner of public works for the Borough of Brooklyn; in 1906 an unsuccessful candidate for Congress.

He was elected to the Sixty-second Congress in 1911.

REDMOND, JOHN. See GREAT BRITAIN, *Home Rule Bill* and *War or Conference*.

REFERENDUM. See ELECTORAL REFORM.

REFORM, ELECTORAL. See ELECTORAL REFORM; FRANCE, *History*.

REFORMED CHURCH IN AMERICA (DUTCH). A Protestant religious denomination known up to 1867 as the Reformed Protestant Dutch Church of North America. The denomination numbered in 1913 121,640 communicants, 707 churches, and 774 ministers. This represented a gain of 3076 communicants for 1912. There are connected with the denomination four particular synods and 35 classes. In the Sunday schools there were enrolled about 125,000 pupils. The contributions for benevolent objects amounted to about $500,000; for congregational purposes, about $1,700,000. There were connected with the denomination the foreign missionary board, women's foreign missionary board, domestic missionary board, board of education, board of publication, two theological seminaries, and several other educational institutions. The general synod met in 1913 at Asbury Park on June 5. See also RELIGIOUS DENOMINATIONS AND MOVEMENTS.

REFORMED CHURCH IN THE UNITED STATES, GERMAN. This denomination, known also as the German Reformed Church, had in 1913, 306,337 communicants, 1776 churches, and 1210 ministers. The gain in communicants for 1912 was 6190. The denomination is divided for administrative purposes into eight district synods and 59 classes corresponding to the presbyteries in the Presbyterian bodies. In the Sunday schools there are about 250,000 scholars and 25,000 teachers. Mission work is carried on practically in all the States of the Union, and in Canada. Foreign missions are also conducted in Japan and China. The denomination has theological seminaries in Lancaster, Pa., and Dayton, Ohio. Colleges maintained include Franklin and Marshall College, and Heidelberg College, at Tiffin, Ohio. Colleges for women are maintained at Frederick, Md., and Allentown, Pa. See also RELIGIOUS DENOMINATIONS AND MOVEMENTS.

REFORMED EPISCOPAL CHURCH. This denomination had in 1913 10,800 communicants, 80 churches, and 83 ministers. There was a gain of 400 communicants over 1912. There are six bishops at the head of the denomination. Domestic missions are carried on among the colored people in South Carolina, and foreign missions are maintained in India. The theological seminary of the denomination is in Philadelphia, and the official organ of the church is the *Episcopal Recorder*, published in the same city. See also RELIGIOUS DENOMINATIONS AND MOVEMENTS.

REFORMED PRESBYTERIANS. A general name given to several religious bodies of Presbyterian doctrine, founded by members of the Covenanted Reformed Presbyterian Church of Scotland. Included in the title are the Synod of the Reformed Presbyterian Church in North America; the Reformed Presbyterian Church in North America, General Synod; the Reformed Presbyterian Church, Covenanted; and the Reformed Presbyterian Church in the United States and Canada. The largest of these bodies is the Synod of the Reformed Presbyterian Church in North America. This denomination had in 1913 9015 communicants, 110 churches, and 143 ministers. The Reformed Presbyterian Church, General Synod, had 3400 communicants, 18 churches, and 16 ministers. The Reformed Presbyterian Church in the United States and Canada had 398 communicants, one church, and one minister. The Reformed Presbyterian Church, Covenanted, had 40 communicants, one church, and one minister. The General Synod maintains a theological seminary at Philadelphia and a college at Cedarville, O. See also RELIGIOUS DENOMINATIONS AND MOVEMENTS.

REFRIGERATION. With the elaborate equipment of the Bureau of Standards at Washington, interesting tests have been conducted to determine the latent heat of ice and a value of 143.5 British thermal units per pound, instead of 144 B. T. U., as generally employed in the United States, was found approximately correct. The bureau was to take up the test of the resistivity of insulation, and also the properties of ammonia and other refrigerants. In connection with the properties of ammonia, the Engineering Experiment Station of the University of Illinois issued a new set of tables, and so much work had been done in this field that it was thought that many ideas, previously held, might require reconstruction. The Third International Congress of Refrigeration was held in Chicago, at which there were present engineers from twenty different countries and a number of important papers were presented.

REFUSE. See GARBAGE AND REFUSE DISPOSAL.

REID, SIR GEORGE. A Scotch painter, died February 2, 1913. He was born in Aberdeen, in 1841; studied art in Aberdeen; and was for many years a member of the Scottish Academy. It was not until he was past middle age that his work became well known in England. On the death of Sir William Fettes Douglas, in 1891, he was elected president of the Royal Scottish Academy. He was knighted soon after his election, and he held the presidency of the society until 1902, when he retired. He was especially eminent as a portrait painter.

RELIGIOUS DENOMINATIONS AND MOVEMENTS. The statistics of religious bodies were gathered in 1913 by the Federal Council of the Churches of Christ in America (q.v.), under the supervision of Dr. Henry K. Carroll. The statistics, as will be noted from the table below, show a net increase in the number of persons actually enrolled as members of the Christian Churches within the United States of 618,000, or 1.8 per cent. in 1913. Several of the small bodies lost in membership. If only the active bodies are taken into consideration, the total increase in 1913 was 655,000, or a fraction under 2 per cent. This is at the rate of 20 per cent. a decade, or about equal to the proportionate growth of the population. The figures do not include foreign mission fields, but the continental United States only.

Of all the denominations, the Methodist showed the largest increase, 220,000. The Methodist Episcopal Church North increased by 122,000, its largest growth in recent years. The next largest increase was made by the Roman Catholic Church, with 212,500. The

Baptist growth was 64,600, the Presbyterian 45,600, the Lutheran 36,100, the Disciples of Christ 21,800, and the Episcopalians 16,500. In compiling figures of the Roman Catholic Church, Dr. Carroll deducted 15 per cent. from the official Roman Catholic population figures for children not yet confirmed in an attempt to make these figures correspond with others, and represent actual membership of communicants.

The eight largest denominational bodies are the Roman Catholic, Methodist, Baptist, Lutheran, Presbyterian, Disciples of Christ, Protestant Episcopal, and Congregationalists, containing 34,000,000 of the 37,280,000 actual members of churches within the United States. The statistics show that all these large denominations grew with fair steadiness during 1913.

Dr. Carroll was unable to secure statistics for the Christian Science churches for 1913, and those given are for 1912. He was unable also to obtain late figures for the Latter Day Saints or Mormons, and the figures given in the table are an estimate. He estimates the Jews in the United States at 2,000,000, of which New York contains about 900,000, making it the greatest centre of Jewish population in the world.

The surprising feature of 1913 was the extraordinary number of new churches. This is due, it is said, to the enterprise of many bodies in organizing scattered communicants, and also to the realization of the economic fact that small churches, except in particular cases in centres of large cities, are to be preferred to large churches, because relatively they reach and interest larger numbers of people at less cost for maintenance.

An interesting fact shown by the statistics is that few new religious fads or "isms" are making headway. Twenty years ago the number of new religious platforms put forth was some twelve or fifteen a year. Most of these were local to given cities, and had only one man or woman behind them. A few gained national headway each year. It is now a fact that the number of these annual outputs is hardly more than six, possibly some years eight, and very few gain in real following that lasts between four or five years. The statistics show an overwhelming preponderance of the large bodies that have assured standing. The total number of bodies having 100,000 communicants or more in 1913 was 36.

The following table gives detailed information of the religious denominations of the United States in 1913:

Denominations	Summary for 1913			Net gains for 1913		
	Ministers	Churches	Communicants	Ministers	Ch'h's	Communicants
Adventists (6 bodies)	1.179	2,547	98.822	7	25	3.014
Baptists (15 bodies)	42,808	57,364	5,924,662	858	388	64,608
Brethren (Dunkard, 4 bodies)	3,446	1,291	119.640	38	52	184
Brethren (Plymouth, 4 bodies)	......	403	10,566	...	...	.....
Brethren (River, 3 bodies)	224	105	4,903	...	...	.....
Buddhist (2 bodies)	15	74	3,165	...	...	.....
Catholic Apostlic (2 bodies)	33	24	4,927	...	...	.....
Catholics (Eastern Orthodox, 7 bodies)	291	331	438,500	28	57	4,500
Catholics (Western, 2 bodies)	18,377	14,717	13,099,534	404	381	213,027
Christadelphians	......	70	1,412	...	...	.....
Christians	1,129	1,182	102.902	...	...	.....
Christian Catholic (Dowie)	35	17	5,865	...	...	.....
Christian Scientists	2,460	1,230	85,096	...	...	.....
Christian Union	308	272	14,807	13	35	902
Churches of God (Winebrennarian)	509	595	41,475	...	...	.....
Churches of the Living God (colored, 3 bodies)	101	68	4,286	...	...	.....
Churches of New Jerusalem (2 bodies)	137	157	9,601	9	14	47
Communistic Societies (2 bodies)	......	22	2,272	...	...	.....
Congregationalists	6,150	6,100	748,340	25	36	5,314
Disciples of Christ (2 bodies)	7,692	11,725	1,519,369	362	742	21,824
Evangelical (2 bodies)	1,539	2,600	187,045	16	27	2,179
Faith Associations (9 bodies)	241	146	9,572	...	...	.....
Free Christian Zion Church	20	15	1,835	...	...	.....
Friends (4 bodies)	1,476	1,167	124,216	...	...	.....
Friends of the Temple	3	3	376	...	...	.....
German Evangelical Protestant	59	66	34,704	...	...	.....
German Evangelical Synod	1,051	1,345	261,488	13	19	2,577
Jewish Congregations	1,084	1,769	143,000	...	...	.....
Latter-Day Saints (2 bodies)	3,560	1,520	356,000	200	100	3,500
Lutherans (21 bodies)	9,194	16,010	2,388,722	165	1,455	36,120
Scandinavian Evangelical (3 bodies)	629	857	72,900	18	9	2,400
Mennonites (12 bodies)	1.413	736	57,337	...	...	.....
Methodists (16 bodies)	41,529	61,523	7,125,069	454	496	219,974
Moravian (2 bodies)	146	143	20,463	3	...	493
Nonsectarian Bible Faith Churches	50	204	6,396	...	...	.....
Pentecostal (2 bodies)	725	648	23,937	2	42	680
Presbyterians (12 bodies)	13,740	16,286	2,027,598	164	490	45,649
Protestant Episcopal (2 bodies)	5,527	7,899	997,407	11	95	16,556
Reformed (4 bodies)	2,168	2,763	463,686	55	110	4,580
Reformed Catholic	7	6	3,250	...	...	.....
Salvationists (2 bodies)	2,790	889	27.474	204	17	129
Schwenkfelders	6	6	1,000	...	2	59
Social Brethren	15	17	1,262	...	...	.....
Society for Ethical Culture	7	6	2,450	...	...	.....
Spiritualists	......	2,000	200,000	...	...	.....
Theosophical Society	......	145	4,189	...	11	.....
Unitarians	531	477	70,542	4	1	.....
United Brethren (2 bodies)	2,264	4,166	328,099	2	50	7,131
Universalists	702	709	51,716	...	...	.....
Independent Congregations	267	879	48,673	...	...	.....
Grand total for 1913	175,637	223,294	37,280,370	1,841	2,032	655,908
Grand total for 1912	173,796	221,262	36,624,462	1,901	1,102	528,777

RELIGIOUS EDUCATION. See Universities and Colleges.

RESERVOIRS. See Aqueducts, Dams, and Irrigation.

RÉUNION, or Bourbon. An island in the Indian Ocean; a French colony. Area, 1980 square kilometers (764 square miles); population (1911), 173,822. Capital, St. Denis, with 25,689 inhabitants. Imports (1910), 18,853,000 francs; exports, 16,915,000. There are 126 kilometers of railway. The budget for 1911 balanced at 4,125,000 francs. The governor in 1913 was P. L. A. Duprat.

REVENUE. See articles on various countries; on States of the United States; and United States.

REYES, Bernardo. A Mexican soldier, killed in the revolt against President Madero on February 9, 1913 (see Mexico). He was born in Guadalajara in 1847. He was still at school when the French under Marshal Bazaine invaded Mexico, for the purpose of overthrowing the republic and creating an imperial throne for Maximilian of Austria. Reyes joined the Mexican army and in one battle was shot through the wrist. He was captured by the French troops, but the French commander, admiring his courage, sent him to his home under military escort. He soon rejoined the army. He was commissioned second lieutenant, and distinguished himself. After the invaders were repelled Reyes continued in the army, and rose to the rank of colonel in 1872. In 1885, after suppressing a revolution in the state of Nueva Leon, he was made a general. His success in a series of battles which restored order in this state caused his appointment as military governor. This position he held for three years, and then declared an election. Garza Ayala was elected governor, and Reyes, having made himself a citizen of Nueva Leon, succeeded him. He served several terms as governor, and during an interim was made secretary of war, but charges were made against him while he held this position, and President Diaz sent him back as governor of the province. Rumors began to circulate that Reyes was instigating a revolution agin Diaz. Within a month he had been stripped of his office and ordered to Paris "on a military mission." After a year and a half of practical exile, he was recalled by Diaz to aid in putting down the revolution headed by Madero. Before he had returned, however, Diaz had gone into exile, and the two men passed each other at sea. On his return to Mexico Reyes proclaimed his loyalty to Madero, but was soon on the side of the insurgents and led them against the federal forces. In November, 1911, he was arrested in San Antonio, Texas, on a charge of plotting to ship arms and ammunition across the border. In the following month he declared that he had failed to secure the support of the Mexican people and had given up his plans for a revolution. He was released from prison on bail, but in December the bail was confiscated, and on Christmas Day, 1911, Reyes surrendered and was placed in prison. Here he remained until the outbreak of the Diaz revolution. For the circumstances relating to his death, see Mexico.

REYNOLDS, George Greenwood. An American lawyer and jurist, died January 23, 1913. He was born in 1821; graduated from Wesleyan University in 1841; in 1844 was admitted to the bar; practiced at Milton and Poughkeepsie, N. Y., until 1854, when he removed to Brooklyn. From 1860-66, and again from 1872-87, he was judge of the City Court of Brooklyn, and in 1881 was appointed by the governor to hold Supreme Court in Brooklyn. In 1871 he received the degree of LL.D. from Wesleyan University and from that year until the time of his death served as a trustee of that university, of which he was the oldest living graduate.

RHODE ISLAND. Population. The population of the State in 1910 was 542,610. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 579,665.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those of 1913 are for estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	11,000	402,000	$398,000
	1912	11,000	456,000	401,000
Oats	1913	2,000	52,000	26,000
	1912	2,000	57,000	26,000
Potatoes	1913	5,000	650,000	585,000
	1912	5,000	565,000	435,000
Hay	1913	58,000	[a]68,000	1,442,000
	1912	58,000	66,000	1,465,000

[a] Tons.

Mineral Production. The only mineral products of the State are stone, mineral waters, lime, soapstone, and the manufactures of clay. In former years some clay was mined in the State, and in 1911 an effort was made to reopen and operate these mines, but the results were not encouraging. The value of the stone production decreased from $958,733 to $768,067 in 1912.

Transportation. The total mileage of main and branch railroad lines in the State on December 31, 1912, was 211.64, and the total length of railroad tracks was 468.54. The total mileage of roads operated by railroad corporations which either owned or operated within the State was 2097.95.

Education. The total school population in 1913 was 106,613. The enrollment in public schools in 1911-13 was 81,799. The average daily attendance was 74,878. The teachers number 2428, of whom 200 were men and 2228 women. The average yearly salary of men teachers was $1322, and of women teachers $609.78. The legislature of 1913 passed several important measures relating to education.

Charities and Corrections. The charitable and correctional institutions under the control of the State are as follows: Rhode Island Soldiers' Home, Bristol, 149 inmates; Butler Hospital, Providence; State Sanitorium for Consumptives, Wallum Lake, 311. At Cranston are: State Work House and House of Correction, 306; State Hospital for the Insane, 1245; State Prison, 149.

Finance. There was a balance in the treasury on January 1, 1912, of $145,806. The receipts from January 1, 1912, to January 1, 1913, were $3,250,631. The disbursements amounted to $3,335,012, leaving a balance in the treasury at the end of the fiscal year of $68,020. The principal receipts are from taxation, and the chief disbursements are for education, State officers, and State institutions.

Politics and Government. There was no election for State officers during the year as the term of Governor Pothier does not expire until January 5, 1915. The next State election is on November 3, 1914. On January 21 the legislature elected LeBaron B. Colt (q.v.) United States senator, to succeed George Peabody Wetmore, whose term had expired.

Legislation. The legislature met in 1913 and passed two measures of importance. They both related to hours of labor for women and children. A maximum of ten hours per day and 54 hours per week for women and minors in certain employments was made mandatory, and the employment of children under fourteen years of age was prohibited in certain employments. Restrictions were also placed on the conditions of labor for children over that age.

State Government. Governor, Aram J. Pothier; Lieutenant-Governor, R. B. Burchard; Secretary of State, J. Frederick Parker; Attorney-General, Herbert A. Rice; Treasurer, Walter A. Read; Adjutant-General, Charles W. Abbott, Jr.; Auditor, Charles C. Gray; Commissioner of Public Schools, Walter E. Ranger; Commissioner of Insurance, Charles C. Gray—all Republicans.

Judiciary. Supreme Court: Chief Justice, Edward C. Dubois; Associate Justices, Clark H. Johnson, C. Frank Parkhurst, W. B. Vincent, William H. Sweetland; Clerk of the Court, B. S. Blaisdell—all Republicans.

State Legislature, 1913. Republicans: Senate, 32; House, 61; joint ballot, 93. Democrats: Senate, 6; House, 39; joint ballot, 45. Republican majority: Senate, 26; House, 22; joint ballot, 48.

The representatives in Congress will be found in the section *Congress*, article United States.

RHODESIA. A British protectorate (named for Cecil Rhodes) in South Africa, administered by the British South Africa Company. It is divided into Northern and Southern Rhodesia.

Northern Rhodesia is made up of the two former provinces of Barotseland (Northwestern R.) and Northeastern Rhodesia, and was constituted a single British sphere in 1911. Its area is estimated at 291,000 square miles and its native population (1911) at 821,102; there were 1497 Europeans present May 7, 1911. The administrator (1913, L. A. Wallace) resides at Livingstone. Other towns are Fort Jameson, Broken Hill, and Lealui (the residence of the native king, Lewanika, chief of the Barotse).

Southern Rhodesia contains Mashonaland and Matabeleland: total area, 148,575 square miles. A census taken May 7, 1911, showed a total of 23,606 Europeans; 12,631 in Mashonaland, 10,975 in Matabeleland. Native population, 744,559 (495,451 and 249,108). Salisbury, the capital, had 3479 white inhabitants. Bulawayo (5200 whites) is the commercial centre.

Production. Large tracts have been brought under cultivation (cereals, vegetables, tobacco, fruits, etc.), and the country is admirably adapted to the raising of stock of all kinds. Output of gold during 1912, 642,808 fine ounces (£2,707,368). Output of coal in 1912, 216,140 tons; silver, 176,531 ounces; lead, 590 tons; chrome iron ore, 69,250 tons. The following table gives trade statistics for calendar, and financial statistics for fiscal, years:

	1908-9	1909-10	1910-11	1911-12
Imports...	£1,818,372	£2,214,014	£2,786,321	£2,975,112
Exports...	2,718,476	3,159,569	3,018,099	3,098,400
Revenue..	564,399	620,243	784,908	817,354
Expenditure	535,150	614,405	684,683	737,578

Railways. The railway from Cape Town reached Bulawayo October 19, 1897 (opened November 4); the Beira Railway extension from Umtali reached Salisbury May 1, 1899 (May 22) and Bulawayo October 6, 1902, completing the connection between Cape Town and Beira. The Bulawayo to Victoria Falls line was completed April 25, 1904, and extended to the Broken Hill mine September 1, 1906; still further extended to the Congo frontier December, 1909. Branches connect with the mining districts and with the Matopos, the burial place of Cecil Rhodes. The total mileage at end of 1911 was 2357. A protected line from Umvuma to Victoria (75 miles) has been surveyed. Considerable progress in the increase of the Rhodesian Railway was made during 1913. The Blinkwater Railway Company was constructing 70¼ miles of new line from Gwelo and Umvuma, their present terminus, to Victoria, the site of the famous Zimbabwe ruins, a distance of 70¼ miles. This new line was to serve the Athens Mine, and a number of intermediate stations were to be provided. The distance of Victoria by rail from Beira is 690 miles and 50 miles of the earth work was completed towards the end of the year, and 20 miles of track. The Mazoe and Shamva line, 50 miles in length, was opened during the year, and railway communication through Rhodesia was established between Cape Town to Kamboze in the Congo State, a distance of 2420 miles. Mazoe station is 38 miles from Salisbury, which, in turn, is 385 miles by rail from Beira. The new line runs via Rockwood and Kimberley. The Mashona Railway Company was enlarging its gauge from 2 ft. to the South African standard of 3 ft. 6 in., and was making substantial progress in the work which naturally involves the strengthening of the bridges for through traffic. Various extensions were also in progress, notably one from Eldprado, 78¼ miles from Salisbury, to Sinoia. Considerable additional equipment was added to the rolling stock of the protectory, most of which was sent from England.

Government. In the spring of 1913 it was announced that the number of elected members of the Legislative Council of Southern Rhodesia would be increased from 7 to 12, and the nominees of the chartered company from 5 to 8. Administrator for the British South Africa Company (1913), Sir William Milton.

RICE. Exclusive of China, which publishes no data regarding the crop, and of British India, for which the 1913 figures are not available when the Year Book goes to press, the rice production in five other large producing countries as estimated by the International Institute of Agriculture at Rome, was approximately 570,000,000 bushels, or about 5 per cent. greater than in 1912. The acreage in these countries was also somewhat greater than in the previous year. The normal world's production is about 4,000,000,000 bushels, with

British India and China as the leading countries. Of the reporting countries Japan ranked first, with a yield of about 365,000,000 bushels, being followed by Italy with 27,000,000, the United States with 25,744,000, Egypt with 18,500,000, and Spain with 12,000,000 bushels. The yield in 'the United States was greater by 690,000 bushels than in 1912, and the area devoted to the crop was 827,100,C00 acres, or 104,300,000 acres more than in the previous year. The crop was produced in 10 States, as follows: Louisiana, 11,760,000 bushels; Texas, 9,696,000; Arkansas, 3,769,0C0, California, 293,000; South Carolina, 147,000; Mississippi, 42,000; Georgia, 16,000; Florida, 10,000; and Alabama, 4000 bushels. The acreage as compared with the previous year was decreased in all the States except in Louisiana, Texas, Arkansas, and California, in which it was largely increased, California raising its acreage from 1400 to 6100 acres. The average yield per acre was 31.1 bushels, as against 34.7 bushels in 1912, and the highest average yield in any one State was 48 bushels per acre, secured in California. Based on farm prices, December 1, the crop of 1913 was valued at $22,090,000, or $1,333,000 less than the crop of 1912. (See also BERIBERI.)

RICE, DR. HAMILTON. See EXPLORATION, *South America.*

RICHARDSON, CHARLES FRANCIS. An American scholar and educator, died October 8, 1913. He was born at Hallewell, Me., in 1851, and graduated from Dartmouth College in 1871. From 1872-78 he was on the staff of the *Independent* in New York City, and from 1878-1880 was a member of the staff of the *Sunday School Times.* He was editor of *Good Literature* in 1880-1882. In the latter year he was appointed Winkley professor of Anglo-Saxon and English language at Dartmouth College, a chair he held until 1911. His published writings include: *A Primer of American Literature* (1878); *The College Book* (1878); *The Cross* (poems, 1879); *The Choice of Books* (1881); *American Literature, 1607-1885* (2 volumes, 1886-88); *The End of the Beginning* (a romance, 1896); *A Study of English Rhyme* (1909). He also edited editions of several American authors.

RICHARDSON, SIR GEORGE. See GREAT BRITAIN, *Home Rule Bill, War or Conference.*

RICHET, CHARLES. A French physiologist, awarded in 1913 the Nobel Prize for medicine. He was born in Paris, in 1850, and was educated in that city. From 1881 he was a prominent member of the French Biological Society. He received a prize from the Institute of France for a monograph, the *Chemical and Physiological Properties of the Gastric Juice.* In 1867 he became professor of physiology in the medical faculty of the University of Paris, and in 1899 was chosen a member of the Academy of Medicine. His most recent work has been on anaphylaxis or serum sickness, and for results in these investigations he was awarded the Nobel Prize. He is a prolific writer on medical subjects, and edits an annual dictionary of physiology. He has also written books of poetry, romances, and books on psychology, psychic research, and peace.

RIGGS COLLECTION OF ARMOR. See PAINTING AND SCULPTURE.

RITUAL MURDER TRIAL. See RUSSIA, *History.*

ROADS AND PAVEMENTS. The use of bituminous-bound instead of water-bound broken-stone or macadam road surfacing increased during the year 1913, as did also portland-cement concrete pavements for country roads and city streets. Brick, asphalt, stone block, and rectangular wood block treated with a preservative against decay were still more extensively used than was concrete for city pavements. The choice of a material for wood surfacing or for street pavements should, of course, be governed by a variety of local conditions, which can best be weighed by the road or pavement engineer. Among these conditions volume and kind of traffic and local prices for materials and labor stand first.

EXPERIMENTAL ROADS. Object-lesson roads had been built by the United States office of public roads each year for the 9 years ending with 1913. The total area built ranged from 79,203 square yards in 1905 to 1,007,569 square yards in 1910. Twenty different kinds or combination materials were used, running from plain earth to brick and concrete. In 1913, the yardage was 488,331, including roads classed as experimental. The cost of the object-lesson roads was met by the communities in which they are located, except for the surveys, engineering, and inspection charges, which were borne by the Federal government. See Bull. 53, Office of Public Works (Washington, D. C.) for details of work for 1912-13, and summary of the work of the nine-year period; for an account of a service-test road 3.4 miles long, embracing 26 kinds of material or methods of construction built in 1912-13 by the bureau of highways, Philadelphia, see special report issued by the bureau in November, 1913.

ROAD CONGRESSES AND CONVENTIONS. The third International Road Congress was held at London, England, during the week beginning June 23. Owing to unfortunate conditions which cannot be discussed here, the United States again was not officially represented, but unofficially it was ably represented by a number of prominent American road engineers. Official "conclusions" were adopted on ten main subjects for discussion. (See *Engineering News,* July 24, 1913.) In the United States, national road congresses or conventions were held as follows: Third Annual Road Congress, including American Highway Association and American Good Roads Association, at Detroit, in October; United States Good Roads Association, St. Louis, November; American Road Builders' Association, at Philadelphia, in December.

BIBLIOGRAPHY. A new book published during the year was Blanchard and Droune, *Text-Book on Highway Engineering* (New York). New editions also appeared as follows: Baker, *Roads and Pavements;* Spaulding, *A Text-Book on Roads and Pavements;* Tillson, *Street Pavements and Paving Materials;* Whinery, *Specifications for Street Roadway Pavements* (all New York).

ROBERTS, SAMUEL JUDSON. An American editor and political leader, died March 23, 1913. He was born in Pomeroy, O., in 1858, and was educated at the Canton (Ohio) Academy. From 1878-82 he was on the staff of the Cleveland *Leader and Herald.* After serving on other papers he founded, in 1888, the Lexington (Kentucky) *Leader,* and remained editor and publisher of this paper until the time of his death. He was the Republican nominee for mayor of Lexington in 1887. In 1896 he was chairman of the Republican State campaign committee of Kentucky and managed the campaign in behalf of William McKinley. His efforts resulted in Kentucky being carried for a Republican electoral ticket for the first time in its history. From 1897-1910 he was collector of internal revenue for the seventh Kentucky district.

ROBINSON, Henry Douglas. An American bishop of the Protestant Episcopal Church, died December 18, 1913. He was born at Lowell, Mass., in 1865, and graduated from Racine College in 1884. For several years he was instructor in mathematics at the San Mateo Military Academy, and then became successively head master and warden of the Racine College Grammar School. He was ordained priest in 1888, and in 1907 was appointed missionary bishop of Nevada.

ROBINSON, Joseph Taylor. United States senator (Democrat) from Arkansas. He was born in 1872 at Lonoke, Ark.; educated in the common schools and at the University of Arkansas; and in 1895 began the practice of law. In the previous year he was elected to the general assembly of the State and served in the session of 1895. In 1900 he was presidential elector for the sixth congressional district. Elected to the Fifty-eight Congress, he was reelected to congresses up to and including the Sixty-second. He was chosen United States senator to succeed Jeff Davis (q.v.). His term of service expires March 3, 1919.

ROCHEFORT-LUCAY, Victor Henri, Marquis de. A French politician, journalist, poet, and revolutionist, died July 1, 1913. He was born in Paris in 1831. He studied at the College Louis le Grand, where he was popular with his teachers and fellow students on account of his ready wit and his independence. After leaving school, he took to writing poetry for a living, but finding this unremunerative, he studied medicine. His parents were so poor, however, that he was obliged to abandon the idea of becoming a physician for lack of funds. He then secured a position as clerk of the town council of Paris. Soon he began to contribute articles to Parisian newspapers, in which he vigorously denounced the empire. This resulted in a systematic attempt of the government to prevent his writing, and the publications for which he wrote were seized. Rochefort himself was thrown into prison. Here he spent several years, but continued his writing which brought him eventually an income of over $50,000 a year. In 1868 he established *La Lanterne*, a weekly paper, which after the third month of its existence, was suppressed. Rochefort was sentenced to one year in prison and to pay a fine of 10,000 francs. This offense, however, was pardoned by the emperor, and Rochefort resumed at once the publication of *La Lanterne* in Brussels, where it was more vigorous and scathing in its denunciation of the government than ever, and it was said that over 200,000 copies every week were smuggled into France. In 1869 he founded *La Marseillaise*, and in the same year he was elected to the Assembly in the first Parisian district. His paper was soon seized, and he was again thrown into jail. Convicted of libel, he was sentenced to six months of imprisonment. On the proclamation of the republic, the people of Paris attacked the jail and took him triumphantly from his cell to the Louvre. During the siege of Paris by the Prussian army, Rochefort was president of the commission for barricades. In 1871 he was elected to the National Assembly. During the Commune he was head of the department of state. On the fall of the Commune he endeavored to escape from Paris, but was caught. On September 21, 1871, he was court-martialed and sentenced to deportation to Cayenne for life. After remaining in that island for two years, he escaped in company with two companions, and, after thrilling adventures, reached an English vessel, which had been chartered by a friend, and the refugees were taken from the island. Rochefort went to Switzerland, where he lived a quiet life and contributed to leading radical papers in France, England, and Germany. At the general amnesty on July 11, 1880, Rochefort was permitted to return to Paris. In that year he was badly wounded in a duel. He was an ardent champion of General Boulanger, and supported him strongly in his paper, the *Intransigeant*, which was founded in 1880. On the fall of Boulanger he was prosecuted, and again exiled. He left France with Boulanger to live in England, where he remained for several years. Rochefort has been described as one of the most trenchant satirical writers that France has produced. Before politics had embittered him, most of his writings were full of delicious humor. His published writings include *Les Français de la Decadence* (1866); *La Grande Bohême* (1867); *L'Evadé* (1880); *Les Adventures de ma Vie* (1895); *La Lanterne* (1868).

RODDENBERY, Seaborn Anderson. An American public official, member of the House of Representatives from Georgia, died September 25, 1913. He was born in Decatur County, Ga., in 1870; was educated at the common schools and at Mercer University; and for a time he filled the chair of language and mathematics at South Georgia College. In 1891 he was elected to the Georgia legislature and served for the sessions of 1892-93. He then taught school, and studied law. He was admitted to the bar in 1894. After serving for several years as county judge, he was elected mayor of Thomasville. In 1910 he was elected to the Sixty-first Congress to fill an unexpired term, and was reëlected to the Sixty-second and Sixty-third Congresses without opposition.

ROENTGEN RAYS. See Physics.

ROLLER DAMS. See Dams.

ROMAN CATHOLIC CHURCH. A general jubilee had been proclaimed by the Pope for the year 1913, in commemoration of the peace edict of Constantine, giving freedom to Christianity, and it was observed with fervor all over the Catholic world. The official ceremonies at Rome were carried out during the year with great splendor and it is estimated that during the jubilee period 200,000 pilgrims visited Rome. As a memorial, the new basilica of the Holy Cross, built during the year, was dedicated at the close. In this is an altar, costing $25,000, given by leaders of the *Sacred Heart Review* of Boston, Mass.

The work of codifying the canon law was advanced during the year, and the biblical commission issued several important decisions on the text. The head of the commission, Right Rev. Abbot Dow Gasquet, made a tour of the

United States, explaining the scope of the commission and asking aid in its mission.

The Pope's sister, Rosa Sarto, died on February 11, and he himself had a serious attack of illness in April. At the social week held in Milan, Archbishop Rossi, of Udine, created a sensation, on December 1, by a speech in which he demanded the full and unfettered liberty of the church and an international guarantee of the complete independence of the Papacy. In a letter to the Patriarch of Lisbon in March, the Pope strongly protested against the persecution of the church by the officials of Portugal. Father Salvatore Brandi, the famous Jesuit editor of the *Civilta Cattolica*, resigned that position because of ill health. He is a naturalized citizen of the United States.

The Catholic population of the world is estimated at 298,734,824, and of this total, 37,576,506 are in English-speaking countries. At the end of 1913, Pope Pius X. was assisted in the government of the church by 56 cardinals: 30 Italians; one each from Germany, Holland, Ireland, England, Belgium, and Brazil; 6 from France; 5 from Austria-Hungary; 4 from Spain; 3 from the United States; and 2 from Portugal. Six cardinals died during 1913: Nagl, Respighi, Aguirre, Vives y Tuto, Oreglia, and Rampolla, making 44 deaths in all during the reign of Pius X. The hierarchy of the world consists of 14 patriarchs, 1108 archbishops and bishops of residential sees, and 370 titulars, or 1437 in all. The senior is Bishop Laspro of Salerno, consecrated March 23, 1860, and the oldest, Bishop Monnier, titular of Lydda, and auxiliary of Cambrai, France, who was born January 5, 1820. During his ten years' pontificate, Pius X. has added to the Catholic heirarchy 18 new archbishoprics; 53 episcopal sees; 4 abbacies and prelacies "nullius"; 37 vicarates apostolic; and 34 prefectures apostolic. He has appointed 746 members of the living heirarchy; 661 were appointed by Leo XIII., and 30 by Pius IX. Among these 30 are included Cardinal Gibbons and Archbishops Ireland and Spalding. Of the regular orders the Franciscans have 2 representatives and the Jesuits, discalced Carmelites, Augustinians, Redemptorists, and Benedictines one each among the present cardinals. Cardinal Gibbons, of Baltimore, raised to the Sacred College, June 7, 1886, is the senior in service, but as he does not reside in Rome, the dignity of that rank is accorded to one of those who do. In 1913 the Pope created 13 new dioceses, chiefly in Africa and South America, 7 vicarates apostolic, and 6 prefectures apostolic.

These figures are given, in the *Official Catholic Directory* for 1913, for the numerical standing of the church in the United States: Archbishops, 16 (three of these metropolitans are cardinals); bishops, 100; priests, 17,945 (13,273 secular; 4672 regular); churches with resident priests, 9500; missions with churches, 4812; seminaries, 85, with 6169 students; colleges for boys, 230; academies for girls, 684; parishes with schools, 5256, pupils attending, 1,360,761; orphan asylums, 288, inmates, 47,415; total children in Catholic institutions, 1,593,316; homes for aged, 108; total Catholic population, 15,154,158.

The States having the largest Catholic population are graded in the *Directory* as follows: New York, 2,790,629; Pennsylvania, 1,633,353; Illinois, 1,460,987; Massachusetts, 1,383,435; Ohio, 743,065; Louisiana, 584,000; Michigan, 568,505; Wisconsin, 558,476; New Jersey, 506,000; Missouri, 470,000; Minnesota, 454,797; Connecticut, 423,000; California, 403,500; Texas, 306,400; Iowa, 266,000; Maryland, 260,000; Rhode Island, 260,000; Indiana, 232,764; Kentucky, 163,228; New Mexico, 140,573; Kansas, 131,000; New Hampshire, 126,034; Maine, 123,600; Nebraska, 118,270; Colorado, 105,000. If to the Catholic population of continental United States are added the 7,131,980 Catholics in the Philippines, 1,000,000 in Porto Rico, 42,108 in the Hawaiian Islands, 11,510 in Alaska, and 900 in the Canal Zone, the total figure will be 23,329,047. The Catholic population of England and Wales is given in the English *Catholic Directory* as 2,100,446, an increase of over 300,000 for the year; Scotland, 518,969; a decline of 28,567; Ireland, 5,242,570; total Catholic population of the British empire, 13,385,565, viz: Europe, 5,800,526; Asia, 288,398; Africa, 498,365; Australasia, 1,184,500; America, 3,271,358. There are in Great Britain 27 bishops; 4449 priests, an increase of 48; 2264 churches and chapels, an increase of 82. Conversions numbering 6322 were made during 1913 in England and Wales.

UNITED STATES. Archbishop Harty, of Manila, returned to the United States in December, to get missionary priests for the Philippines and a congregation of teaching sisters for the schools there. Archbishop John L. Spalding celebrated his sacerdotal golden jubilee at Peoria, Ill., on November 25. Bishop William J. Kenny, of St. Augustine, Fla., died on October 23. Catholic governors were elected in Illinois, Edward Dunne; in Massachusetts, David Walsh; and in Rhode Island, Aram Pothier. Notable national conventions were the 10th of the educational association at New Orleans, June 30 to July 6; supreme convention of the Knights of Columbus at Boston, August 5-8; 58th of the Central Verein at Buffalo, August 3-8; 12th of the American Federation of Catholic Societies at Milwaukee, August 10-13; Second Missionary Congress at Boston, presided over by Cardinal O'Connell, and attended by 63 bishops and hundreds of priests. At Buffalo, the Central Verein discussed social problems and resolved to establish the Ketteler House for Social Studies at Chicago. At the federation convention at Milwaukee, Cardinal Gibbons and many prelates were present and Archbishop Ireland delivered a remarkable address on "Catholicism and Americanism." The Knights of Columbus presented the Catholic University with an endowment of $500,000 for lay scholarships. This society now has 302,000 members.

OTHER COUNTRIES. The International Eucharistic Congress was held at Malta, April 22-27. A British cruiser was sent to transport the Pope's legate, Cardinal Ferrata, from the mainland to the island. The place for the congress of 1914 was fixed at Lourdes, July 22-26. In 1915 it will be at Sydney; 1916 at Palermo; and in 1917 at Lima.

Archbishop Fennelly, of Cashel, Ireland, resigned because of ill health, and the Rev. Dr. John Harty, professor of theology at Maynooth College, was appointed his successor. Rev. Dr. Arthur Beliveau was appointed auxiliary bishop to the archbishop of St. Boniface, Canada; the Rev. Dr. K. J. O'Brien was appointed bishop of Peterboro, and the Ruthenian

Bishop Budka assumed charge of the 215,000 Catholics of that race who are scattered over the Dominion. Archbishop Quisola, of Valencia, was transferred to the patriarchial see of Toledo to be primate of Spain, which carries with it later elevation to the cardinalate.

A general chapter cf the brothers of the Christian schools was held in April at Lembee les-Hal, Belgium. These brothers now number 17,000, scattered throughout the world, teaching in the boys' parish schools.

ROMANCE. See PHILOLOGY, MODERN.

RONTGEN RAYS. See RADIOTHERAPY.

ROOT, ELIHU. See ARBITRATION, INTERNATIONAL.

ROSE, URIAH M. An American jurist and peace advocate, died August 12, 1913. Born in Marion County, Ky., in 1834, he received his education in the public schools; studied law; and practiced from 1853-60 at Batesville, Ark.

He was chancellor of the Chancery Court at Little Rock, Ark., from 1860-65, and was in private practice in that city from the latter year until his death. He was for several years a member of the Democratic national committee; in 1901-02 president of the American Bar Association; in 1907 a delegate to the Second Hague Peace Conference. He was the author of *Rose's Digest of Arkansas Reports*, and of many articles on American and European jurisprudence in law journals.

ROWING. Syracuse broke Cornell's long string of victories by winning the varsity eight-oared race in the intercollegiate regatta, held on the Hudson River near Poughkeepsie. Cornell, however, retained part of her rowing prestige by capturing the varsity four-oared and the freshmen eight-oared events. The University of Washington, winner of the Pacific coast intercollegiate regatta, was represented in the Poughkeepsie races for the first time and made an excellent showing by taking third place in the varsity eight-oars. Wisconsin was fourth and Columbia fifth.

The Syracuse varsity eight consisted of C. T. Mahan, bow; W. L. Joslyn, 2; M. H. Kuehn, 3; H. W. Robbins, 4; R. W. Propst, 5; J. H. Rich, 6; M. F. Hilfinger, 7; and G. B. Thurston, stroke. The crew's time for the four miles was 19 minutes 28⅗ seconds. The record for the event, 18:53⅕, was made by Cornell in 1901. The times made by the other crews in 1913 were: Cornell, 19:31; Washington, 19:33; Wisconsin, 19:36; Columbia, 19:38⅕; Pennsylvania, 20:11⅕. In the varsity four-oared event (2 miles), the time of Cornell, the winner, was 10:47⅖; Pennsylvania, 10:52⅕; Columbia, 10:54⅘; Wisconsin, 10:58⅘; Washington, 12:08⅗. Syracuse's time was not taken. The victorious four were C. W. Brown, bow; S. V. Hiscox, 2; W. F. Thatcher, 3; and E. S. Bird, stroke. Cornell, also the winner of the freshmen eight-oars, covered the 2 miles in 10:04⅘. Wisconsin was second in 10:07⅘; Syracuse third in 10:14⅗; Pennsylvania fourth in 10:25⅖ and Columbia last in 10:29. The winning eight were: J. C. Othus, bow; J. L. Moffatt, 2; J. H. Allen, Jr., 3; M. N. Shelton, 4; Q. A. Gillmore, 5; B. C. Duffie, 6; R. Welles, 7; and A. R. Gillman stroke.

Harvard, for the sixth year in succession, triumphed over Yale in the annual races held on the Thames River, near New London, Conn. The Cambridge oarsmen won all the events for the fourth time since 1909. Harvard's time in the varsity eight-oars was 21:42½ and Yale's 22:20. The winning eight comprised Q. Reynolds, bow; F. H. Trumbull, 2; E. O. Morgan, Jr., 3; B. Harwood, 4; G. M. MacVicar, 5; A. M. Goodale, 6; G. F. Stratton, 7; and L. S. Chanler, stroke. In the varsity four-oars Harvard's time was 11:52 and Yale's 12:11. The winning four were: E. K. Carver, bow; G. von Meyer, 2; H. A. Murray, 3; and W. Pirnie, stroke. The closest of the three races was the freshmen eight-oars, in which Harvard's time was 10:41 and Yale's 10:45. The victorious crew included: A. T. Lyman, bow; D. P. Morgan, 2; E. W. Soucy, 3; H. F. Middendorf, 4; T. H. Potter, 5; K. B. G. Parson, 6; C. E. Schnall, 7; and L. S. Chichester, stroke.

In the Pacific coast intercollegiate varsity race over a 3-mile course at Oakland, Cal., Washington finished first, Leland Stanford, the winner in 1912, second, and California third. Washington's time was 17:44. Leland Stanford won the freshmen event with California second. Dual college regattas in 1913 resulted as follows: Cornell varsity eight defeated Harvard varsity eight; United States Naval Academy eight defeated Pennsylvania eight; Washington varsity eight defeated California varsity eight. The Princeton eight won the triangular race with Harvard and Pennsylvania, and Columbia in another triangular regatta defeated Princeton and the United States Naval Academy.

The Duluth Boat Club won the principal races at the 41st annual championship regatta of the National Association of Amateur Oarsmen held at Boston. These events included the senior eight and intermediate eight-oared shell races and the senior four and intermediate four-oared shells. The Argonaut Rowing Club of Toronto, Canada, which had carried off the chief laurels in 1911 and 1912, was victorious only in the senior international four-oared shells. R. Dibble of the Don Rowing Club won the sculling championship of the United States and Canada from E. B. Butler of the Argonauts, by capturing the senior sculls, the ¼-mile race, and the association single sculls. With F. H. Zepper, Dibble also won the senior double sculls.

The 11th annual regatta of the National Rowing Association, popularly known as the American Henley, was held on the Schuylkill River, over a course of 1 mile, 550 yards. The winners of the main events were: First four-oared shells, Puritan Cup, Vesper Boat Club of Philadelphia; first eight-oared shells, United States Naval Academy; junior collegiate eight-oared shells, New England Cup, Cornell University; first four-oared shells, Union Boat Club of Boston; first single sculls, Farragut Cup, John B. Kelley, of the Vesper Boat Club.

At the Henley regatta, held on the Thames, England, the Zeandes Club won the Grand Challenge Cup by defeating Jesus College; time, 7 minutes, 11 seconds. The Ladies' Challenge Cup was captured by First Trinity, Cambridge, and the Steward's Challenge Cup by New College, Oxford. The 70th annual Oxford-Cambridge regatta was won for the fifth successive year by Oxford in 20 minutes, 53 seconds. The record for the event, 18:29, was made by Oxford in 1911. In professional sculling matches Ernest Barry retained the world's championship by defeating Harry Pearce in a four-mile race at London. Edward Durnan defeated

Frank Greer for the championship of America in a three-mile race at Toronto, Canada.

RUBBER. The rubber industry during the year 1913 suffered through the various disturbances incidental to commercial conditions, especially changes of tariff and general depression and uncertainty on account of the diminished activity of the manufacturing industry. Crude rubber sold at a low price at American and European ports, and in the principal producing countries there was considerable distress at the poor commercial conditions. This was true especially in Brazil where at Manâos and Pará the business of some firms came practically to a standstill, while African rubber was also in slight demand. The progressive note from Malaysia in regard to the rubber plantations and the rubber industry generally, was not heard in 1913 as in previous years, and within six months the price of the best grades fell from $102 to $51 per 100 pounds. It was feared that with the present condition of affairs some 400,000 acres of the 1,400,000 that had been planted in rubber would lapse back into jungle. On the other hand, conservative authorities saw no occasion for serious apprehension, as the demand for rubber must increase, and the natural supplies would suffer from methods of harvesting so that the world must look eventually to the plantations which, if well managed, should afford ample returns. In this connection the following table of the estimated acreage planted in rubber for 1913 is of interest:

	Acres
Malay Peninsula	667,000
Ceylon	230,000
Java, Sumatra, etc.	267,000
Other countries	55,000
Total	1,219,000

As exemplifying 1913 conditions in Brazil—and the same is true of Bolivia and Peru—it may be said that in December, 1912, Pará rubber sold for $1.12 a pound and Caucho for 82 cents a pound. During 1913 prices fell so that fine Pará sold for 73 cents per pound in October, and Caucho for considerably less, which were the lowest prices recorded since 1908. A large part of the supply was held in storage awaiting better prices, and there was much disturbance among the rubber gatherers due to the inactivity of the importers. The rubber fields of Brazil were examined during the year by a commission of British representatives of rubber interests with a view to ascertaining whether modern and scientific methods of culture and handling the crude product could be introduced in Brazil. Their opinion was that conditions in South America were quite different from those in Malaysia and the methods of the East would not apply.

As regards the manufacturing industry in the United States the most notable feature during the year was the over-production of rubber tires for motor vehicles with the result that during the year prices were reduced almost 25 per cent., these reductions coming after an earlier reduction made in 1912. While there was apparently no evidence that the demand for rubber or manufactures of rubber would be in any way curtailed in the future, yet it was apparent that stocks of manufactured articles, as well as raw material, were equal to the demand.

World's Supply of Rubber, 1912-1913

	1912 tons	Estimated 1913 tons
Wild—		
Brazil	40,500	39,000
West Africa	13,800	10,000
East Africa, Penang, Borneo, Rangoon, Assam, Madagascar, etc.	4,000	3,000
Central America, Mexico, etc.	2,500	2,000
Guayule	7,000	2,000
Jelutong, etc.	2,700	2,000
Total Wild	70,500	58,000
Plantation (Ceylon, India, and Malaya)—		
Total Plantation	28,500	47,000
Grand total	99,000	105,000

The total exports of rubber from the Malay States in 1913 amounted to 52,557,409 pounds (23,463 tons) as compared with 34,732,415 pounds (15,506 tons) in 1912 and 19,695,330 pounds (8792 tons) in 1911. This indicates a steady increase in the output and the month of December, 1913, showed the largest amount ever exported.

World's Consumption of Rubber

	1912 tons	Estimated 1913 tons
Europe—		
England	14,500	17,500
Germany, Austria, etc.	16,000	16,500
France	9,500	9,000
Russia	9,000	11,500
Italy, etc.	1,500	1,300
Japan and Australia	1,000	2,000
America and Canada	47,500	47,200
Total	99,000	105,000

The increase in consumption was mainly in the English and Russian consumption, the figure of 1913 for America and Canada being estimated at about the same as 1912.

The average New York prices for Pará rubber for 1913 and three preceding years were as follows:

	Average Prices				
	Up-river		Islands		
	Fine	Coarse	Fine	Coarse	Cameta
1913	$0.87¼	$0.58	$0.79½	$0.36¾	$0.42
1912	1.11¾	.89½	1.05½	.59	.63¾
1911	1.18¼	.95	1.10¼	.64	.70½
1910	2.01¼	1.36¼	1.89¾	.90	1.00

The following table gives the importations of rubber into the United States:

	1910	1911	1912	1913
Fine Pará……tons	10,274	10,818	13,185	10,072
Coarse Pará	4,622	5,074	6,056	5,257
Plantation Ceylon	3,611	6,556	15,003	23,967
Centrals and Caucho	4,636	4,316	6,469	5,022
E. India and Africa	9,773	8,324	9,338	4,406
Total	32,916	35,088	50,051	48,724

RUBBER, World's Production of. See Agriculture.

RUBBER INDUSTRY. See Bolivia, and Brazil.

RUM. See Liquors.

RUMANIA. A constitutional European monarchy, hereditary in the male line of Charles I. of the house of Hohenzollern. It is composed of the former principalities of Moldavia and Wallachia, with the territory of the Dobruja and, as a result of the wars in the Balkans, a strip of territory acquired from Bulgaria, between the Danube and the Black Sea. The capital is Bucharest.

Area and Population. The preliminary results of the census of January 1, 1913, are compared in the table below with the actual results of the census of 1899; the inhabitants per square kilometer (D) are for 1913; the area is in square kilometers for the 32 departments, the acquired area, and total:

	Sq. kms.	1899	1913	D.
Argesh	4,435	207,605	242,946	55
Bacau	3,973	195,194	232,146	60
Botoshani	3,148	171,437	197,118	63
Braila	4,358	145,284	181,033	42
Buzau	4,863	221,263	277,598	57
Constantsa	6,910	141,056	217,740	32
Covurlui	2,961	143,784	171,710	75
Dambovitsa	3,456	211,666	258,367	67
Dolj	6,565	365,579	437,517	65
Dorohoi	2,822	159,461	184,357	49
Falciu	2,208	93,831	108,324	43
Gorj	4,698	171,300	200,859	36
Ialomitsa	6,789	187,889	242,611	68
Iashi	3,121	192,531	213,196	117
Ilfov	5,780	541,180	678,769	32
Mehedintsi	4,949	249,088	295,548	59
Muscel	2,954	115,180	135,616	46
Neamtsu	3,998	149,711	169,794	42
Olt	2,825	143,843	171,262	61
Prahova	4,064	307,302	389,785	84
Putna	3,249	151,249	181,103	56
Ramicu-Sarat	3,268	136,918	164,166	50
Roman	2,091	111,588	128,190	61
Romanatsi	4,577	203,773	248,401	54
Suceava	3,421	131,596	158,971	46
Tecuci	2,547	121,179	142,993	56
Teleorman	4,085	238,628	296,759	61
Tulcea	8,026	126,752	172,566	20
Tutova	2,391	116,377	129,858	54
Vaslui	2,294	110,184	127,704	56
Valcea	4,239	190,903	231,572	55
Vlashca	4,488	202,759	259,482	58
Total	131,353	5,956,690	7,248,060	55
New territory*	8,340	....	353,600	40
Total	139,693	5,956,690	7,601,660	54

* Territory ceded to Rumania by Bulgaria by the treaty of Bucharest, August, 1913.

The number of marriages in 1912 was 62,400 (74,542 in 1911); births, 314,090 (299,870); deaths, 165,616 (179,076); stillbirths (not hereinbefore included), 9032 (8144). Bucharest had (1913) 338,109 inhabitants; Iashi (Jassy), 75,882; Galatz, 71,719; Braila, 64,750; Poleshti, 56,594; Craiova, 51,973; Botoshani, 32,813; Buzau, 28,781; Constantsa, 26,608; Bârlad, 25,381; Focshani, 25,155; Turnu-Severin, 23,765; Tulcea, 21,764; Giurgiu, 20,893.

Education. Primary instruction is free and nominally compulsory, but the number of schools is totally inadequate, nearly 60 per cent. of the population over seven remaining illiterate. The total number of rural primary schools in 1909-10 was 4695, with 6460 teachers and 504,297 pupils (333,378 boys, 170,919 girls); urban primary schools, 378, with 1324 teachers and 80,656 pupils (46,276 boys, 34,380 girls). The average number of pupils per teacher in rural schools is 78. Secondary schools are provided in tolerably adequate numbers and are fairly attended. The special schools are mainly agricultural. Universities, Bucharest and Jassy. The Greek Orthodox is the national religion.

Production. But for its unfavorable climate, Rumania would be, in the proportion of its cultivated area, the most productive country in Europe. The soil is of extraordinary fertility; but the intense cold of the winters and the frequently severe droughts of the summers render production uneven. Yet even in poor years the country raises ample crops for its own use, and in good years has quantities of grain, fruits, and vegetables to export. The following table gives areas under great crops, in thousands of hectares, for six years; fibres include flax, hemp, etc.; legumes, etc., include peas, beans, lentils, etc., and potatoes; industrial plants include sugar beets, tobacco, etc.; grasses include sown and natural; vines, etc., include plum orchards.

	1906	1907	1908	1909	1910	1911
Cereals	5,284	4,783	5,133	5,045	5,132	5,096
Fibres	58	35	36	87	115	91
Legumes, etc.	60	55	63	56	51	63
Industrial pls.	17	17	20	21	24	28
Grasses	563	574	539	564	531	561
Vines, etc.	159	154	158	155	159	159
Total	6,172	5,642	5,976	5,954	6,036	6,021

Areas, in hectares, devoted to principal cereals, sugar beets, etc., in 1912 and (provisional) 1913, with production in quintals, and average quintals per hectare in 1912, are as follows:

	Hectares		Quintals		Qs.
	1912	1913	1912	1913	ha.
Wheat	2,069,420	1,623,105	24,334,331	22,913,340	11.8
Rye	107,244	90,583	915,447	950,000	8.5
Barley	499,885	562,539	4,557,783	6,020,000	9.1
Oats	381,785	522,149	3,100,000	5,320,000	8.1
Corn	2,079,220	2,146,971	28,198,466	30,000,000	13.6
Flax*	31,761	27,299	182,332	135,000	5.7
Beets†	14,363	13,014	2,922,389	2,600,000	203.5
Vines‡	70,429	72,585	1,589,975	1,000,000	22.6
Tobacco	9,284	10,976	59,029	88,000	6.4

* Production of seed. † For sugar. ‡ Productive area; production in hectoliters of wine.

Livestock in 1911: 824,714 horses (864,324 in 1900); 2,666,945 cattle (2,588,526); 5,269,493 sheep (5,655,444); 186,515 goats (232,515); 1,021,465 swine (1,709,205); 4248 mules and asses (7701). The livestock industry has declined since 1882, when the Austro-Hungarian frontier was closed to the export of live animals. The fishing industry has developed; so that instead of an import of fish as formerly, there is an annual export valued at about 2,790,000 lei. Sericulture is carried on. A government land bank has been formed to afford to peasants the means for buying or leasing land and to act as a bank for peasant proprietors and coöperative societies.

Minerals are believed to be plentiful, but only coal and petroleum are worked. Output of petroleum in 1910-11, 1,325,743 metric tons; 1905-6, 681,496; 1899-1900, 222,012. Export of refined petroleum in 1910-11, 323,788 tons; of benzoine, 120,606 tons; of mineral oils, 8093; of waste products, 86,400. Output of coal in 1910-11, 131,278 tons. Value of output from the quarries in 1911-12, 211,937 leī.

COMMERCE In the table below are shown imports and exports for four years in leī:

	1908	1909	1910	1911
Imps..	414,058,479	379,430,871	409,715,576	616,504,872
Exps..	368,300,099	465,056,619	570,317,744	691,720,408

In thousands of leī are given below imports and exports by great classes for 1910 and 1911:

	Imports		Exports	
	1910	1911	1910	1911
Animals & an. prods.	83,398	118,740	17,767	19,419
Agricultural "	144,441	191,422	553,828	625,364
Mineral "	112,512	138,789	43,399	45,726
Other "	69,365	120,793	1,510	1,212

Among exports, the first place is occupied by cereals and their derivatives, valued at 557,653,135 leī in 1911 and 489,821,009 in 1910; petroleum and bitumens, 40,742,375 and 38,897,169; legumes, flowers, and seeds, 35,216,655 and 34,730,967; timber and wooden wares, 25,760,654 and 34,730,967. Among cereals wheat is first—244,823,761 leī in 1911 and 329,619,389 in 1910; corn, 183,218,092 and 69,597,101; barley, 59,835,102 and 41,184,096; oats, 26,385,777 and 17,041,715; rye, 16,605,914 and 16,015,108; flour, 18,420,669 and 12,508,768.

The principal countries of origin and destination follow, values in thousands of leī for 1910 and 1911:

	Imports		Exports	
	1910	1911	1910	1911
Germany	138,237	183,197	24,281	38,008
Austria-Hun.	97,980	137,940	37,284	62,874
United Kingdom	56,776	85,595	33,505	55,980
France	25,627	35,762	46,874	48,879
Italy	21,744	28,592	68,672	49,592
Belgium	13,983	28,114	226,242	263,468
Turkey	13,851	13,583	18,600	21,030
Russia	11,771	13,542	......	6,971

Vessels entered in the 1911 trade, 37,985, of 11,707,631 tons; 1912, 36,967, of 10,805,605 tons. Cleared, 1911, 37,849, of 11,739,333 tons; 1912, 36,729, of 10,740,173 tons. Merchant marine, January 1, 1913, 649 vessels of 198,159 tons (steamers, 117, of 30,762).

COMMUNICATIONS. There were in operation September 1, 1913, 3763 kilometers of railway, of which 3549 kilometers were state-owned, State telegraph lines, 7706 kilometers; wires, 21,661; stations, 3125; wireless stations, 1, and 5 on board vessels. Urban telephone lines, 590 kilometers, wires, 27,570; interurban lines, 25,826, wires, 56,305. Post offices, 2998.

FINANCE. The monetary unit is the leu (par value, 19.295 cents). The actual revenue and expenditure for years indicated are in leī:

	1897-8	1907-8	1908-9	1909-10
Rev...	210,838,729	331,517,072	468,959,752	522,842,688
Exp...	217,335,486	269,180,173	417,422,122	481,921,854

The revenue for 1912-13 is reported at 587,983,251 leī and the expenditure at 487,576,942 leī. The budget for 1913-14 is detailed in the accompanying table in thousands of leī.

The debt stood, April 1. 1913, at 1,640,895,699 leī.

Revenue	1000 leī	Expenditure	1000 leī
Direct taxes	46,330	War	81,893
Indirect taxes	87,600	Finance	219,085
Stamps, etc.	34,000	Instruction *	51,076
Monopolies	78,810	Interior	49,145
Public services	148,115	Public works	101,564
Domains	32,501	Justice	11,401
Subventions	22,518	Agriculture	10,158
Finance	73,713	Industry	4,868
Interior	3,872	Foreign affairs	3,187
Justice	2,219	Council	65
Foreign affairs	120	Extraordinary	3,865
Agriculture	98		
Industry	1,496		
War	550		
Public works	37		
Instruction *	6,328		
Total	536,307	Total	536,307

* And worship.

ARMY. The organization of the Rumanian army as carried out in 1912 showed in 1913 that the forces were in good condition and well trained. Service is compulsory between the ages of 21 and 42, while preliminary training takes place between the ages of 19 and 21. The active army is constituted by seven classes of recruits of ages from 21 to 28, two years being spent with the colors in the case of the infantry and three years in the case of the cavalry and artillery, the remainder of the service being on unlimited furlough, about half of the annual contingent of troops undergoing training and for those who provide their own horses a Schimbul cavalry, a sort of voluntary organization, attracts large numbers. Service for ten years in the reserve follows and four years in the militia. The army is organized in five army corps, two divisions, and a number of reserve divisions. In the infantry there are ten rifle battalions, 40 infantry regiments of 122 battalions, and 80 reserve battalions. The cavalry is made up of one escort regiment, 10 Roshiori regiments, eight Calarashi regiments formed from the Schimbul. The artillery comprises 120 field batteries, 10 field howitzer batteries and fortress regiments for the fortifications at Bucharest and Sereth. The engineers include 12 sapper companies, four telegraph companies, four pontoon companies, four railway companies, and one ballooning section, giving a peace strength of 101,348 and a war strength of over 500,000. Hitherto the eleven Rumanian hussar regiments and the nine regiments of chasseurs were grouped in ten brigades of two regiments each. By a decree of October 7, 1913, a 10th chasseur regiment was created and the 21 regiments and the escort regiment were grouped into six brigades of three regiments each and two brigades of two regiments.

NAVY. In 1913 the navy included 1 protected cruiser, of 1320 tons; 1 dispatch boat, 130; 5 gunboats, 607; 1 training ship, 350; 1 torpedo depot, 104; 3 gunboats, 135; 4 torpedo gunboats, 128; 3 torpedo boats, 150; 4 police boats, 2720; 8 torpedo vedettes, 360.

GOVERNMENT. The two autonomous provinces of the Ottoman Empire, Moldavia and Wallachia, combined with the Dobruja December 23, 1861, to form an independent kingdom. The king is the executive, assisted by a council of eight ministers. A Senate (120 members) and a Chamber of Deputies (183) compose the legislative body.

Charles I., the reigning king, is the son of Prince Carl of Hohenzollern-Sigmaringen; he came to the throne in 1866 upon the deposition of Prince Alexander John, and was proclaimed king instead of prince in 1881. He married (1869) Princess Elizabeth von Wied, popularly known as Carmen Sylva. The heir presumptive is the second son of the king's elder brother, Prince Ferdinand, born August 24, 1865; he married (1893) Princess Marie of Saxe-Coburg-Gotha.

The ministry as constituted October 14, 1912, was (1913) as follows: T. Majoresco, premier and minister for foreign affairs; T. Jonesco, interior; C. G. Dissesco, worship and instruction; C. C. Arion, agriculture and domains; M. G. Cantacuzene, justice; A. Badereu, public works; Gen. C. Herjeu, war; N. Xenopol, industry and commerce.

HISTORY. At the beginning of the year Rumania was an interested onlooker of the struggle which the other Balkan states were waging aginst Turkey. From the outset M. Majoresco's government had made it plain that the price of their country's neutrality would be the cession by Bulgaria of Silistria and a strip of territory in the Dobruja—"rectification of the frontier" as it was euphemistically described. But the slowness and deliberation with which the government proceeded to put its foreign policy into effect were galling to Rumanian patriotism and to a group of politicians who were advocates of stern, quick action. When the czar of Russia, to whom the question had been submitted for arbitration, made a decision in April, awarding only Silistria to Rumania, a storm of indignation broke loose against M. Majoresco. M. Filipesco, minister of agriculture and domains and formerly premier, resigned from the cabinet and entered the opposition; and M. Carp, former leader of the Conservative party, reëntered politics in order to denounce what he termed his country's humiliation. But M. Majoresco stolidly held his ground and the uncompromising attitude of Bulgaria afforded him an opportunity in July to repudiate the Russian award and to unite the Rumanian military forces with those of Servia and Greece in order to despoil Bulgaria. The chief incidents of this second phase of the Balkan War are noted in the article on TURKEY AND THE BALKAN PEOPLES. So triumphant were Rumanian arms that M. Majoresco was able to dicate terms of peace at Bucharest and the treaty concluded there on August 10 transferred from Bulgaria to Rumania the lands in the Dobruja north and east of a line drawn from Turtukai to Baltchik. The successful intervention of Rumania in the Balkan War, attended as it was by relatively slight sacrifice of life or money, reëstablished the popularity of M. Majoresco's government, for, with the extension in the Dobruja, Rumania still remained the most important of the Balkan states, numbering 7,600,000 souls, as compared with the 5,500,000 of Bulgaria. A *rapprochement* was effected between M. Filipesco and the Conservative party, and at the party conference on November 27 M. Majoresco was formally and unanimously elected leader in succession to M. Carp.

Meanwhile the government concerned itself with the financial and other problems which the war had created. At a two day's session of Parliament in July, supplementary military expenditures had been approved, amounting to 108,910,000 francs, and in September it was planned to cover the expenses involved by the reorganization of the newly acquired territory by means of a German loan of 300,000,000 francs bearing 4½ per cent. interest. On September 13 King Charles signed a decree relegating the army to a peace footing and about the same time diplomatic relations were resumed with Bulgaria. Later in the month the war office announced that it was drawing up plans for fortifications along the new frontier and that great fortresses would be erected at Silistria, Dobritch, and Mangalia. For a navy, as well as for the army, elaborate schemes were on foot. A "Navy League" was formed early in the year in order to arouse popular interest in, and financial support for, making Rumania a naval power on the Black Sea comparable with Bulgaria and Russia. A commission of officers and engineers recommended in May that a heavily fortified harbor be constructed at Mangalia; that town already possessed a deep lake, connected with the sea by a narrow channel, so that it would not be difficult to construct a harbor large enough to contain the whole Rumanian navy, no matter how strong it might become in the future. Late in May a special commission was sent abroad to study the management of naval affairs in Italy, France, and Great Britain. At the same time, orders were placed for four torpedo destroyers of 1400 tons each and a speed of 35 knots; and in December four additional river monitors were authorized. The movement to provide for the higher education of women under Orthodox auspices, inaugurated in 1912, bore fruit in 1913 by the opening of an institution at Jassy on September 1. In December M. Take Jonesco, minister of the interior, expressed his approval of the idea of the expropriations of parts of large landed estates for distribution among the peasantry. In foreign affairs it was obvious that the Balkan War had caused Rumania, Servia, and Greece to draw together; at any rate there were very cordial exchanges of visits between Bucharest and Athens, and an elaborate agreement to connect the railway sytsems of Rumania and Servia by means of a great bridge across the Danube.

RUMBOLD, SIR HORACE. Eighth baronet. An English diplomat, died November 3, 1913. Born in 1829, he entered the diplomatic service at an early age, and in 1849 was appointed attaché at Turin, afterwards holding offices in the legations at China, Greece, Russia, and Turkey. From 1872 to 1878 he was minister to Chile; from 1878-79 to Switzerland; to Argentina in 1878; from 1881-1884 minister to Sweden and Norway; minister to Greece from 1884-1888; to the Netherlands from 1888-96; and from 1896-1900 ambassador to Austria-Hungary. He was one of the best-known of English diplomats. His published writings include: *The Great Silver River; Notes of a Residence in Buenos Ayres; Recollections of a Diplomatist* (1902); *Further Recollections* (1903); and *Final Recollections* (1905).

RURAL CREDIT. See AGRICULTURE.

RURAL PROBLEMS, ETC. See AGRICULTURE.

RUSSIA. An empire of eastern Europe and northern Asia, extending from the Baltic to the Bering and from central Europe and Asia to the Arctic Ocean. Capital, St. Petersburg.

AREA AND POPULATION. The results of the

first and last census, taken January 28, 1897, are compared in the table below with the population as calculated January 1, 1911; the area is in sq. versts (1 sq. verst=.439408 sq. mile) exclusive of the great internal waters:

	Sq. versts	1897	1911
European Russia	4,238,711.7	94,215,400	120,588,000
Poland	111,554.2	9,455,900	12,467,300
Caucasus	412,310.8	9,248,700	12,087,200
Siberia	10,946,644.7	5,699,000	8,719,200
Central Asia....	3,110,623.7	5,724,700	10,107.300
Finland	286,041.8	2,555,500	3,115,197
Total	19,099,886.9*	126,896,200	167,034,200

* 21,741,600 sq. kilometers; 8,394,018 sq. miles.

Total area of the empire, including the inland seas, Khiva, and Bokhara, 22,556,520 sq. kilometers (Caspian Sea, 438,690 sp. kms.; Sea of Azov, 37,600; Lake of Aral, 67,770; Bokhara, 203,430; Khiva, 67,430). Population of Bokhara, 1,500,000; of Khiva, 800,000.

The population is made up of Slavs, including Little and White Russians, Poles, etc., 91.8 per cent.; Letts and Lithuanians, 3.1; Mongols (the Kalmuks of the Astrakhan steppes), Tatars (in southern Siberia), Kartvelians (14.5 per cent. of the population in the Caucasus), Turko-Tatars (20.2 per cent. of the population in the Caucasus), Cossacks (only in the Cossack provinces), etc. Urban population (1910), 22,506,800; rural, 141,272,000.

St. Petersburg had (1911) 1,911,400 inhabitants, Moscow 1,505,500, Warsaw 864,000, Odessa 498,100, Kiev 446,800, Lodz 403,720, Riga 327,940, Kharkov 223.700, Saratov 202,330, Vilna 188,300, Kazan 182,540, Ekaterinoslav 151,200, Astrakhan 149,830, Tula 135,130, Samara 124,900, Rostov-on-Don 124,500, Kishinev 120,710, Minsk 110,910, Nizhni-Novgorod 106,120, Kherson 85,300—all in European Russia; Baku 222,100, Tashkent 193,500, Tiflis 191,800, Kokand 115,000, Tomsk 108,800, Ekoterinodar 99,530, Vladivostok 93,200, Omsk 91,200, Irkutsk 88,700, Samarkand 81,810—all in Asiatic Russia.

The movement of the population is detailed in the table below for the latest available years (M. marriages, B. births, D. deaths, E. emigration to Siberia):

	M.	B.	D.	E.*
1901..........	862,408	4,801,190	3,218,501	218,879
1902..........	877,909	4,993,248	3,204,333	572,579
1903..........	919,082	4,978,305	3,103,213	758,812
1904..........	801,313	5,118,663	3,149,958	707,463
1905..........	839.986	4,819.155	3,410,569	352,950

* For years 1906, 1907, 1908, 1909, 1910.

The number of emigrants overseas is impossible to calculate, as many escape from Russia without passports, far the greater number having the United States as their ultimate destination.

Education, etc. Instruction is totally inadequate and in the rural districts many of the reported schools exist on paper only. Not more than 10 per cent. of the total population have received even the most elementary instruction. Many of the teachers lack proper qualifications. A large part of the appropriation for education is controlled by the Holy Synod, which, with the ministry for education, has the direction of elementary instruction. Secondary schools are insufficient; special schools are few but show a tendency to increase. There are universities at Kazan, Kiev, Kharkov, Moscow, Odessa, St. Petersburg, Saratov, Tomsk, Yuriev, and Warsaw. Finland has an admirable school system and a highly intelligent population.

The attendance of Jewish children at the general schools is severely restricted; special schools are supposed to be maintained for them, but are few and inadequately supported. Private Jewish enterprise maintains about 14,740 kheders, with some 202,000 pupils. Nearly 94 per cent. of the Jews in Russia are restricted to the pale, covering about 362,000 sq. miles, a little over 4 per cent. of the empire, a little under 20 per cent. of European Russia.

All Russians, Rumanians, most Kartvelians, and some Turko-Tatars and Finns belong to the Greek Orthodox church (69.90 per cent. of the population); most Turko-Tatars and the mountain tribes of the Caucasus, to Islam (10.83 per cent.); Poles and Lithuanians, to the Roman Catholic church (8.91); Finns, Germans, Letts, etc., to Protestant sects; and Armenians to the Gregorian church. Jews number about 4.05 per cent.

Agriculture. Out of a total of 102,935,619 dessiatines (1 dessiatine=2.7 acres) under private ownership (1909), 26,812,251 belonged to the peasants; 49,361,865 to the nobles; 16,093,974 to merchants, etc.; 154,689,573 to the crown, churches, etc.; 15,778,677 to corporations. Sixty-five per cent. of the total forests of the empire is owned by the government (which derived a revenue of 70,000,000 roubles from the timber industry in 1910), 23 per cent. by landed proprietors, 9 per cent. by the peasantry. The distribution of agricultural lands (1909) is shown below in dessiatines:

	Cropped	Pasture	Forest
European Rus.*	74,880,300	23,549,600	139.543,700
Poland	5,163,700	867,700	2,177,200
Caucasus	7,546,300	1,953,100	4,967.200†
Siberia	5,273,600	5,568.500	228,189,100†
Central Asia...	1,733,600	2,597,900	15,370,700†

* Fifty governments. † Forests administered by the forestry department.

Much of the area of the empire is unfit for any kind of cultivation; the north is frozen during all but a few weeks during which pasture grass and berries grow; in the south sandy steppes meet the head of the Caspian Sea, and dense forests occupy large tracts in the interior provinces and in Siberia. Between the Baltic and the Black seas, however, the soil is exceedingly fertile, producing great quantities of grain.

The following table covers 63 governments (including Poland) in European (E) and 10 in Asiatic (A) Russia, areas in thousands of hectares, yield in quintals, average quintals per hectare in 1912; figures for 1912 are final, for 1913 subject to revision:

	1000 hectares		Quintals		Qs.
	1912	1913	1912	1913	ha.
Wheat E.	24,551	25,118	169,759,945	228,008,468	6.9
" A.	4,342	5,303	28,105,593	37,558.920	6.5
Rye E....	28,649	29,081	256,802,008	246.888,423	9.0
" A....	1,046	1,265	8,401,472	7,624.620	8.0
Barley E.	11,379	12,218	99,272,975	119.699.556	8.7
" A.	333	438	2,683,529	3,602.063	8.0
Oats E...	16,680	16,907	141,269,002	159,810.389	8.5
" A...	1,947	2,321	13,862,636	19,346.961	7.1
Corn E...	1,641	1,706	20,221,186	18,490,765	12.3
" A...	9	7	86,816	106,473	9.7
Beets* E.	703	708	107,880,308	123,276,527	143.3

* For sugar.

Livestock. There were in 1909 in the empire 32,114,000 horses, 48,491,000 cattle, 79,562,705 sheep and goats, 12,651,298 swine. In 1912 there were 23,860,178 horses in European and 6,865,878 in Asiatic (10 governments) Russia; cattle, 34,547,348 and 7,381,247; sheep and goats, 42,735,567 and 16,257,736; swine, 11,944,568 and 918,634. The dairy industry is important, the export of butter in 1909 being 3,540,000 poods, valued at 48,404,000 roubles. Poultry and eggs are exported—234,726,580 dozen of eggs in 1909.

Mining and Metals. The empire is rich in minerals. Vast treasures are stored in the Obdorsk, the Ural, and the Altai mountains, and a large proportion of the mines in operation are found there. But the industry is undeveloped. Capital is wanting, and the government does not encourage foreign enterprise. The great distances to be traversed and lack of transportation facilities militate aginst economical transportation of the requisite machinery. The Russian government consistently refuses to make available such statistical information as is freely furnished by other governments; so that it is from unofficial sources that the following figures for production in 1910 are derived: 63,646 kilos unrefined gold (producing about 88 per cent. of fine gold), 5479 kilos crude platinum, 14,847 kilos unrefined silver (producing about 92 per cent. fine silver), 1285 tons lead, 10,667 tons zinc, 22,329 tons copper, 2,985,000 tons pig iron, 2,969,000 tons rolled iron and steel of all kinds, 25,094,000 tons coal, 9,474,000 tons petroleum, 2,035,000 tons salt, output of pig iron in 1911, 219,075,000 poods; iron and steel, 202,702,000; coal, 1,725,443,000 (1,209,710,000 from south Russia, 360,400,000 from Poland, 99,293,000 from Asiatic Russia, 41,800,000 from the Ural districts); petroleum, 559,000,000 poods (461,000,000 from the Baku district). Petroleum output in 1912, 560,000,000 poods (469,000,000 from the Baku district).

Manufactures. The manufacturing industries are imperfectly developed. Political conditions are not conducive to business security nor to the certainty of justice that makes for expansion and prosperity. The number of factories under state supervision January 1, 1910, is given at 14,710, employing 1,831,396 persons. Distilleries 2809, output of alcohol 114,278,000 gallons; sugar works 277, output 85,856,000 poods; flax, jute, and hemp fatories 414, value of annual output about 73,000,000 roubles; cotton spinning and weaving mills 140, value of annual production about 607,000,000 roubles. Value of the annual production of the timber industry, 155,000,000 roubles.

Fisheries. The value of the fisheries products in 1911 was estimated at about 97,000,000 roubles.

Commerce. The trade for successive years, imports and exports of merchandise and precious metals, is shown below, values in thousands of roubles:

	Merchandise		Precious Metals	
	Imps.	Exps.	Imps.	Exps.
1907	847,365	1,053,010	10,937	13,108
1908	912,659	998,250	28,226	18,914
1909	906,336	1,427,675	46,284	26,806
1910	1,084,446	1,449,085	71,281	32,158
1911	1,161,682	1,591,411	......	......

The principal articles in the 1911 trade follow, with values in thousands of roubles:

Imports	1000 r.	Exports	1000 r.
Machinery	147,247	Cereals, etc.	707,851
Cotton	116,788	Timber	142,368
Tea	59,180	Eggs	80,760
Metal wares	52,733	Butter	71,141
Woolens	48,536	Flax and tow	70,393
Coal and coke	39,790	Sugar	66,288
Metals	37,349	Seeds	49,100
Silks	27,253	Oilcake	34,427
Fish	32,586	Cottons	32,024
Rubber	27,838	Bran	31,615
Woolen yarn	25,285	Petroleum, etc.	30,439
Paper, etc.	24,619	Hides †	30,112
Seeds, etc.	23,979	Live animals	26,390
Hides *	20,864	Metals	22,327
Chem. products	20,805	Hemp and tow	17,572

* Prepared, and exclusive of 17,034,000 roubles raw hides. † Raw and prepared.

The principal countries of origin and destination which figure in the total trade of the empire are given in the table below, with import and export values in thousand of roubles:

	Imports		Exports	
	1910	1911	1910	1911
Germany	449,794	487,780	390,640	490,525
U. Kingdom	153,847	155,081	315,476	337,032
China	78,818	82,311	20,158	25,598
United States	74,441	102,489	9,489	13,467
France	60,972	56,782	93,646	90,813
Persia	36,702	35,402	37,904	44,551
Finland	35,992	39,993	42,821	53,668
Aus.-Hun.	35,026	34,265	49,735	67,930
Netherlands	20,444	17,513	195,982	188,799
Italy	16,916	17,559	75,196	52,709
Turkey	10,836	10,227	27,859	33,580
Egypt	10,144	7,834	3,310	3,198
Denmark	7,719	7,678	26,534	35,605
Sweden	7,615	9,988	8,907	8,940
Belgium	7,093	7,052	66,515	55,424
Norway	6,522	8,304	6,154	9,957
Rumania	2,312	2,846	15,049	29,720
Greece	1,587	1,634	18,331	14,579
Spain	444	1,994	7,007	4,557
Other	67,227	74,950	38,382	30,759
Empire	1,084,446	1,161,682	1,449,085	1,591,411

Separate figures are given for the trade passing by way of the European and Black Sea (Caucasus) frontiers and to and from Finland. The details below are for 1911 and (provisional) 1912, values in thousands of roubles:

	Imports		Exports	
	1911	1912	1911	1912
Foodstuffs	134,134	140,198	988,547	788,608
Raw materials*	517,046	516,267	473,486	578,786
Animals	3,457	2,581	25,831	30,068
Manufactures	368,062	375,456	25,873	29,571
Total	1,022,699	1,034,502	1,513,737	1,427,033

* Raw and half raw materials.

Across the Asiatic frontier the principal articles of export are sugar (12,328,000 roubles in 1909) and cotton goods (21,519,000); of import, rice (7,025,000) and raw cotton (9,534,000).

Shipping. The shipping entered and cleared at all ports in the trade of the empire is detailed in the table below for 1911:

	Entered		Cleared	
	No.	Tons	No.	Tons
White Sea	1,054	797,000	1,001	794,000
Baltic	7,698	5,805,000	7,729	5,837,000
Black & Azov.	4,749	7,344,000	4,575	7,163,000
Pacific Coast	725	1,068,000	708	1,035,000
Total	14,226	15,014,000	14,018	14,829,000

The details of the merchant marine January 1, 1913, are shown as follows, total vessels, and total steamers:

	Total		Steamers	
	No.	Tons	No.	Tons
White Sea..........	490	35,028	70	12,280
Baltic	963	186,129	243	112,908
Black and Azov....	1,322	281,895	413	230,826
Pacific Coast........	47	20,308	38	19,896
Caspian Sea........	823	233,250	252	111,054
Total..............	3,645	756,605	1,016	486,914

Communications. Railways in operation January 1, 1913, 70,259 versts (74,942 kilometers)—15,971 versts (17,036) in Asiatic Russia and 54,288 (57,906) in European Russia, the latter divided as follows: 35,211 versts (37,558 kms.) state lines, 16,820 (17,941) private lines, 2257 (2407) local lines. The development of the Amur region through railway construction progressed during 1913, the Amur railway being opened to traffic as far as Blagovestchensk. It was expected that sometime in 1914 the line would reach Khabarooka and there join the line from Vladivostock; its completion is scheduled for 1916. State telegraph lines (1911), 185,939 kms. (wires 503,197); police 389 (389); railway 15,872 (214,610); state telegraph stations 4438, railway 4284; wireless stations 19 and 2 on board vessels. Urban telephone lines 13,930 kms., wires 573,851; interurban lines 2328, wires 10,962. Post offices, 16,452. The principal railway construction of Russia during 1913 was the line from Ekaterinberg to the river Tavde, 220 miles in length and parallel to the eastern side of the Ural Mountains. A railway was being completed from Poti to Terapse that will be continued northwards to Novorossisk with the aim of developing that portion of Russia on the east shore of the Black Sea, and part of the region between the Black Sea and the Caspian Sea, best known as an oil producing centre. The new railroad was to run along the seashore and was important because it would form a second means of communication with India, shorter by 372 miles than the proposed Constantinople-Bagdad line. The Trans-Siberian Railway was in course of duplication and progress was being made. During the year the ministry of ways and communication was authorized to purchase 17,000 ordinary freight cars, 1400 passenger cars, and 700 refrigerator cars for the government railways. The installation of refrigerator line routes was an innovation and it was proposed during the ensuing year to make a series of trial runs from Siberia and other districts with meat, fish, game, butter, and eggs, to Warsaw and other cities. In addition, the refrigerator car service was to be tried between Samarkand, Tashkent, Moscow, and St. Petersburg, and from the Crimea to the capital cities.

Finance. The monetary unit is the rouble (par value 51.456 cents), and the standard of value is gold. In the following table are shown revenue and expenditure in roubles, 1911 and 1912 actual, 1913 budget:

	1911	1912	1913
Rev. ord...	2,951,782,684	3,105,916,930	3,240,559,006
" extraord.	2,567,906	1,812,932	10,000,000
Total.....	2,954,350,590	3,107,729,862	3,250,559,006
Exp. ord...	2,535,995,758	2,721,763,595	3,012,264,284
" extraord.	309,694,698	449,296,921	238,294,722
Total.....	2,845,690,456	3,171,060,516	3,250,559,006

Preliminary figures for 1914 estimate the total revenue and expenditure to balance at 3,558,261,499 roubles.

The 1913 budget is detailed in thousands of roubles as follows:

Revenue	1000 r.	Expenditure	1000 r.
Direct taxes....	250,870	Public debt.....	402,760
Indirect taxes:		Council, etc.....	8,815
Customs	334,585	Holy Synod....	44,220
Beverages ...	50,777	Imperial house.	16,360
Tobacco	75,056	War	550,900
Cigaret. paper	4,261	Foreign affairs.	7,230
Petroleum ...	48,036	Marine	228,230
Beet sugar...	139,058	Finance	481,721
Matches	19,617	Commerce, etc.	60,559
Stamps, etc...	218,357	Interior	180,500
Royalties:		Instruction	142,736
Mining	555	Communications	639,412
Mint	7,588	Agriculture	135,503
Posts	76,690	Justice	88,650
Tels. & tels...	40,290	Audit	11,976
Sale of spirits	837,660	State stud......	2,593
Domains	1,004,220	Other	10,000
Redemp. pay'ts.	910	Total ord....	3,012,064
Various	132,031	Ry. construct.	110,634
Total ord...	3,240,559	Army	90,113
Extraord....	10,000	Ports	18,000
		Ry. repairs...	17,720
		Jap. war......	195
		Other	1,633
Total......	3,250,559	Total......	3,250,559

The public debt stood January 1, 1913, at 8,841,723,911 roubles (8,941,640,620 in 1912, 9,014,141,796 in 1911).

A ridiculous incident was connected with the issuance, in commemoration of the Romanoff tercentenary, of postage stamps bearing the portraits of the present czar and some of his forerunners. They had to be withdrawn because of the refusal of the officials in charge of certain minor post offices to obliterate the imperial features with the necessary canceling stamp. Rather sinister than ridiculous is the impression left upon a non-Russian mind by this bit of orientalism.

Navy. The number and displacement of warships built and building, of 1500 or more tons, and of torpedo craft of 50 tons and over, were December 1, 1913, as follows: 7 battleships (dreadnought type, having a main battery of all big guns—11 inches or more in calibre), of 159,305 tons, building; 8 battleships (predreadnought type, of about 10,000 or more tons displacement and with main batteries of more than one calibre), of 112,050 tons, built; 2 coast-defense vessels (including smaller battleships and monitors), of 10,380 tons, built; 4 battle cruisers, of 128,000 tons, building; 6 armored cruisers, of 63,500 tons, built; 9 cruisers, of 52,845 tons, built, and 8, of 45,000 tons, building; 93 torpedo-boat destroyers, of 36,145 tons, built, and 45, of 54,810 tons, building; 14 torpedo boats, of 2132 tons, built; 30 submarines, of 6629 tons, built, and 25, of 14,577 tons, building. Total tons built, 283,681; building, 401,692; total, built and building, 685,373. Russia is the sixth, in point of naval strength, of the great powers. Total personnel, 50,425; including 8 admirals, 18 vice-admirals, 14 rear-admirals, 131 captains and commanders, 1011 other line officers. Air craft include 9 military dirigibles on hand and 10 ordered, and 250 military aëroplanes on hand (monoplanes, biplanes, and hydro-aëroplanes).

Four of the battleships building (the *Sevastopol*, the *Gangut*, the *Petropavlovsk*, and the *Poltava*) are for the Baltic fleet; their keels were laid at St. Petersburg in June, 1909, all were launched in 1911, and they are expected to be ready for service at the end of 1914. The other three (the *Emperor Alexander III.*, the *Empress Marie*, and the *Ekaterina*) are for the Black Sea fleet; they were begun in 1911, and the *Empress Marie* was launched November 1, 1913. The four battle cruisers building (the *Navarin*, the *Borodino*, the *Izmail*, and the *Kinburn*) are to be finished in 1917. Four of the smaller cruisers building are for the Baltic and two for the Black Sea. Messrs. Vickers, Ltd., were awarded a contract in June, 1913, for the erection of a new gun factory at Zarizin, to be finished in two years.

ARMY. A new recruiting law was signed by the emperor on August 5, 1912, and came into effect on December 14, of that year, applying to the contingent of recruits called into service in the fall of 1913. The age of conscription was put back a few months, being placed at 20 years on January 14 instead of 21 years on October 14. The annual conscription was to take place early in the year, or between September 28 and October 28 so as to begin the training of the troops before the severity of the winter and the large number of holidays interfered. The list of exemptions was redrafted and in certain cases postponements instead of exemptions were arranged. Furthermore, the list of educational and professional exemptions was lessened and the incentive for educated conscripts to become officers was increased. The minimum time of short-term volunteers was increased from one year to two years, but it was shortened in the case of those who could pass examinations as officers. Men of educational qualifications, yet not entitled to serve as short-term volunteers under the new law, may enlist between the ages of 18 and 30 to complete the ordinary period of service as ordinary volunteers (Okhopniki) and great efforts were being made to induce men to enlist voluntarily and thus lower the average age of the contingent. The annual contingent of recruits in 1913 was fixed at 455,000 men, as in 1912, but owing to the application of the new law it was expected that there would be less wastage and that about 30,000 more men would be secured. The new law also provided that the short-term volunteers should join in the summer from June 28 to July 13, but this was objected to by the military authorities who wished them to join in the winter with the other recruits. In 1912 the normal organization of the Russian army was as follows: Number of army corps, 37; infantry divisions, 70; rifle brigades, 17; cavalry brigades, 58; reserve infantry divisions to be formed on mobilization, 38; the number of divisions in an army corps were two; the number of brigades in a division were two; the number of regiments in a brigade, two; battalions in a regiment, four; companies in a battalion, four. The peace strength for Europe and the Caucasus was estimated at 949,000, while for Asiatic Russia the force was estimated at 124,000.

In 1913 the Russian military authorities contemplated the creation of four new army corps, two of which were to be in Europe, one in the Caucasus and one in the Far East. This would make 30 instead of 28 army corps in European Russia and would involve an increase in the number of infantry regiments, but the method of securing this had not been definitely decided. Plans had been made for the provision of 24 to 36 additional field batteries, four to six batteries of field howitzers, two to four horse batteries, and one or two batteries of heavy howitzers, or a total of from 30 to 48 entirely new batteries of artillery. 'No provision, however, had been made for increasing the force of cavalry. The light field howitzer batteries had all been armed with the 12 cm. Krupp howitzer and there were enough available for the proposed increase. The heavy artillery had been rearmed with the new 10.6 cm. gun and the new heavy howitzer of 15 cm. (5.906 inches). There was available material for the proposed new batteries and new telegraph companies were to be added to the engineer battalions and three new railway battalions were to be added.

GOVERNMENT. Russia is a (nominally) constitutional monarchy under an autocratic czar, who is supreme ruler and legislator. The constitution of October, 1905, conferring upon the people civic liberty based upon individual inviolability and freedom of conscience, speech, assembly, and association, has turned out to be another Russian pleasantry. The council of empire is composed of an equal number of elected members and members nominated by the czar. The Duma (reduced to 442 members) has on paper large powers of legislation, so long as none of the "fundamental laws of the imperial administration" be not involved. These "fundamental laws," however, have proved a snare and a delusion to many a reform-enamored Duma member. The ruling senate, partly deliberative, partly executive, is the high court of justice for the empire; the Holy Synod is the regulator of religious affairs; the council of ministers is composed of heads of departments.

The reigning czar, Nicholas II. Alexandrovich, of the house of Romanoff-Holstein-Gottorp, Emperor and Autocrat of all the Russias, was born at St. Petersburg May 18, 1868, and succeeded his father November 1, 1894. He married (November, 1894) Princess Alix of Hesse; they have issue four daughters and a son, the heir-apparent, Alexis, born at Peterhof August 12, 1904, and during recent years in precarious health.

The ministry in 1913 was composed as follows: V. N. Kokovtsov, premier and minister for finance; A. A. Maklakov, interior; Gen. V. B. (Baron) Fredericksz, imperial household; Gen. V. A. Sukhomlinov, war; Admiral I. K. Grigorovich, marine; J. G. Stcheglovitov, justice; S. I. Timachev, commerce V. K. Sabler, procurator of the Holy Synod; and industry; S. V. Rukhlov, communications; A. V. Krivocheyn, agriculture; P. A. Kharitonov, state comptroller; Dr. L. A. Casso, instruction.

HISTORY

THE IMPERIAL COUNCIL. The reforms passed by the third Duma could not take effect, socording to the imperial ukase of March 6, 1906, unless approved by the imperial council. This latter body has proved to be the enemy of even moderate innovations. The bills dealing with the responsibility of officials, the admission of women to the bar, the establishment of municipal institutions in Poland, and the extension of the *Zemstvo* system of local self-government to the province of Archangel—these with other measures were either vetoed or postponed by the imperial council, and the important bill for the establishment of cantonal *Zemstvos*, passed in 1911 by the Duma, was still kept on the table of the imperial council.

THE FOURTH DUMA. Later returns regarding the strength of the parties in the Duma which met for the first time on November 28, 1912, placed the strength of the Right at 63; Nationalists, 90; Conservative Constitutionalists (a split from the Nationalist group), 34; Octobrists, 93; and Opposition, 152 (including Progressists, Cadets, Poles, and Extremists). The Octobrists occupied a central and decisive position in the new Duma; they could side with the 184 members of the government parties, or with the 152 of the Opposition: Without the Octobrists neither side could boast a majority. The Octobrists, it must be remembered, had stood for a policy of moderate reform as opposed to radicalism on the one hand, and reaction on the other; they were now torn by opposite tendencies. The manipulation of the recent elections and the growing urgency of reform impelled them away from the government and the Right. Yet they were reluctant to join with the Opposition, for that would mean too great a break with the government, too great a temptation to radicalism. Moreover, in the very first session, in the election of officers, the Nationalist-Right was unwilling to make the concessions necessary to acquire the coöperation of the Octobrists; the latter, therefore, joined with the Opposition in electing M. Rodzyanko (Octobrist) president of the Duma; Prince Volkonsky (non-party Right), first vice-president; Prince Urusov (Progressist), second vice-president; M. Dmitryukov (Octobrist), secretary; M. Nicholas Lvov (Progressist), assistant secretary. The coöperation of the Octobrists with the Left was hailed by the Russian press as an epoch-making event; in many quarters the Octobrists were severely criticised for it; and when M. Rodzyanko took the chair the Nationalists and the members of the Right walked out in indignation. The speech of the new president had significant emphasis on the need for legislative reform. "Gentlemen of the imperial Duma," he said, "I have ever been and always shall be a convinced champion of the representative régime based on constitutional principles, granted to Russia by the great manifesto of October 30, 1905, to consolidate the foundations of which must be the first and instant care of a Russian representative assembly. The Russian people, which has sent its representatives to the imperial Duma, expects of them earnest work and unceasing care, to contribute to the further development and support of the military power of Russia; it expects legislative work directed towards securing in all classes of the population an intelligent obedience to law, and removing from the conditions of the every-day life of the country all manifestations of inadmissible official caprice. The country expects of you, gentlemen of the imperial Duma, legislative measures to assist the development of the principles of local self-government and of the economic forces of our people." The ministry, desiring to gain the support of the Octobrists and at the same time to satisfy the Right, attempted an impossible straddle. In his programme speech the premier, M. Kokovtsov, succeeded in antagonizing all parties, while attempting to please all. To satisfy the Octobrists he declared that, now the country was pacified, it would be possible to realize legally the principles laid down in the manifesto of October 30, 1905. Nevertheless, it was necessary to preserve the basic traditions of the Russian state—the unity and indivisibility of the empire, and the dominant position of the Russian nationality and the orthodox faith. Instead of presenting a clear-cut legislative programme, the premier contented himself with suggesting numerous but vague legislative reforms. The unsatisfactory character of the speech threw the Octobrists again into the arms of the Opposition, and before the adjournment on December 28, 1912, a resolution was passed inviting the government to declare frankly and unreservedly in favor of a legal régime and the Octobrist principles.

The first three months of the 1913 session were characterized by a singular paucity of legislative achievements, due to the refusal of the government to introduce any but petty finance bills. This neglect of much-needed reform made the ministry more unpopular than ever. Several bills were submitted by members of the Cadet party embodying provisions for religious freedom, free assembly, the liberty of the press, the right of association, and universal suffrage. The bills were discussed, but could not be taken seriously. Although the Duma did little legislative work, it directed numerous interpellations against the government; the most important were the interpellation on the illegal extension of the exceptional powers of local administration and that on the relation of petroleum syndicates to the high cost of fuel. Meanwhile the Octobrists in the Duma vacillated between the Right and Left and began to give evidence of a tendency to split.

THE DUMA AND THE BUDGET. The budget for 1913 was not taken up until the end of May, owing to the lateness of the convocation of the Duma. The budget discussions afforded opportunity for a thoroughgoing criticism of the administration. The ministry of the interior received the most bitter attacks. In his preliminary report, the chairman of the budget committee, M. Alexeyenko, struck the keynote of the debate which followed. Russia was governed by police rather than by laws, he said, and although the Russian peasants and artisans bore the burdens of taxation, they were not protected by the government. His concluding words, "We have given you good finances; give us good government," were heartily applauded by the Duma. An Octobrist deputy, M. Shidlovsky, accused the ministry of allowing the police to violate the law and arbitrarily to checkmate all progress. The Cadet party (an Opposition group) were even more outspoken in their condemnation of the unprogressive bureaucracy. In the words of M. Alexandrov, "The Russian government is unworthy of its people." The censure of the home policy was summed up by an Octobrist resolution passed on June 3 by a majority of 164 to 117: (1) That the ministry of the interior by continuing the use of exceptional measures after order has been restored in the country, arouses in the people general dissatisfaction and a legitimate feeling of revolt against unnecessary restrictions; (2) that the ministry has destroyed respect for law and order by refusing to introduce bills to carry out the long-needed reforms set forth in the manifesto of 1905 and in other imperial edicts; (3) that in delaying the reform of local self-government, which has been recognized as necessary by the government itself, and the extension of this reform to the whole of Russia, the government hinders economic and cultural development; and (4) that the application of the existing laws with regard to separate nationalities is disintegrating the people and weakening Russia. The government is called upon for the immediate realization of remedial measures. The situation was critical: A parliamentary majority had condemned the home policy in no uncertain terms. Possibly M. N. Maklakoff, who had only recently succeeded M. Makarov as minister of the interior, felt himself too much of a novice to undertake a justification of his department—at any rate, he observed a profound silence. Meanwhile the Duma went on to criticise the administration of justice and the conduct of education. The educational policy of the ministry was called "a menace to the moral development of the people." Only the departments of war and the navy were exempted from criticism, and these only because of the delicate international situation. The conclusion of the budget discussion on June 25 was welcomed with a sigh of relief by the ministry, and on July 8 the Duma was prorogued to October 8.

The Ministerial Strike. One of the most picturesque incidents of the spring session of the Duma was the "strike" of the cabinet following an insult. It was the result of ill-feeling between the government and the Right. M. Kokovtsov's speech had, as we remarked, deeply offended the Reactionaries by the mention of the legal principles of 1905. As the session progressed it became apparent that the Nationalists were bent upon the destruction of the ministry, which, they said, had been too weak and vacillating to safeguard the interests of the country. The quarrel became more and more noticeable until M Markov, the leader of the Right, indulged in a tirade against abuses in the department of finance—M. Kokovtsov's department—and referring to the officials of that department, said "they must not steal." The deputy speaker called M. Markov to order and M. Markov attempted so to construe his own words that the premier would have no occasion to take offense. It was too late to mend matters, however. M. Kokovtsov had taken the allusion as a personal insult, and left the hall in a huff. The affair was taken up by the council of ministers and the Duma was notified that until the president of the Duma had made formal apology for the insult offered to the head of the ministry by a member of the Duma, no member of the cabinet would enter the hall. The Duma refused and the ministers absented themselves from the remainder of the sittings of the session.

On October 28 the Duma reassembled, with the ministers still "on strike." The strike was proving uncomfortable, however, for both Duma and ministry; it paralyzed the Duma by excluding ministerial reports, and it tended to discredit parliamentary government, thus throwing the ministry somewhat unwillingly into the arms of the reactionaries—who just at this moment were getting themselves cordially hated in connection with the Kiev trial. The situation was much improved by the apology of M. Markov on November 14.

The fall session was signalized by the disruption of the Octobrist party. The party congress in November passed a resolution condemning the government. To this action the Right wing of the Octobrists took exception, whereupon the party disintegrated, the Right wing forming a separate group, and the other faction, with former president of the Duma M. Khomiakoff and present president M. Rodzyanko at their head, formed a new party. The Duma was adjourned by imperial ukase from December 20 to January 27. The Senate, which in Russia is a high court of justice, for the first time in 30 years exercised its prerogative to refuse to register an illegal administrative ordinance. The withdrawal of the illegal ordinance—which concerned the Military Medical Academy—was effected by informal means.

Finland. The conflict between Finnish nationalism and the imperial government's policy of Russification resulted in the resignation of General Langhoff, who for the last seven years as minister secretary of state for Finland had exerted himself to keep peace between the Finns and the St. Petersburg government. General Langhoff was succeeded by M. Markov, a Russianized Finn, who, as vice-president of the economic department in Finland, had given frequent proof of his subserviency to St. Petersburg. M. Borovitonov, a Russian, was appointed to take M. Markov's old place, in direct violation of the provision of the Finnish constitution that the office may be filled only by a native of Finland. Another infraction of law was observed in the introduction—contrary to the act of 1910—of a bill to apply the Russian law to political offenders in Finland. In the attempt to force Russian laws on the grand duchy, constitutionality was disregarded and the Finns were excited to strenuous though unavailing protests. The most striking incident of the year was the consequence of the imprisonment of an officer at Viborg for "political reasons." The officer appealed to the Court of Appeals at Helsingfors and obtained his release. At this juncture the imperial government intervened, called the Finnish judges to account for not applying the Russian law in the case, and put them on trial before a St. Petersburg court. The judges failed to vindicate themselves and were incarcerated in the Kresty prison. This was not the only instance of the kind, according to a Finnish writer. "Other officers who are still free are in a difficult and precarious situation, since it is their duty to follow the laws to which they have sworn an oath of allegiance, yet by so doing they not only lose their positions but are in danger of political persecution. Sorrow and indignation are great throughout the country. Mayors and other officers in Nystad, Tavastehus, and Helsingfors have already been condemned to terms of imprisonment of six months or longer."

Poland. The Polish municipal government bill of the third Duma (see 1912 Year Book, Russia, *History*), amended by the imperial council in the direction of anti-semitism, restricted suffrage, and increased government control, was taken up by the fourth Duma in the spring session. The Opposition attacked the amendments, but the Polish deputies accepted the measure—incomplete as it was. The Poles were reproached with opportunism and repudiated by the Cadets. In December the council of the empire rejected by a vote of 90 to 74 an essential clause of the bill which allowed the use of the Polish language in the municipalities.

The Press. The persecution of indiscreet editors received a temporary setback in March when the czar issued an amnesty as an incident of the tercentenary celebration. The respite was only temporary, however, and the press continued to be subject to fines and editors to imprisonment. A press bill introduced in the Duma in July by the government provided for the censorship of journals an hour before they are exposed for sale, ecclesiastical censorship of religious items, and the responsibility of printers as well as editors. The condition of the press in Russia is well illustrated by the fact that, as the result of inadmissible comments on the Beiliss case, four editors were arrested, two journals were suspended, thirty editions were confiscated, and 34 fines—amounting to 10,000 roubles—were imposed.

Labor Agitation. In the spring of 1913 the anniversary of the Lena strike was celebrated by labor demonstrations in St. Petersburg. It is interesting to record that a thoroughgoing investigation of the circumstances of the strike, conducted by Senator Manukhin, proved that it was the result of oppressive economic conditions, and not of political anarchy. The captain of the rural guard was deemed by Senator Manukhin to be criminally liable. Many unimportant strikes occurred during 1913 and most of them failed for lack of organization, the government having effectively opposed the spread of trade-unionism. More solidarity was shown in July by the strike of 100,000 workmen in St. Petersburg as a protest against the prosecution of the workingmen's journals—*Luch* and *Prawda*. The two newspapers were suppressed, but reappeared under new names, as *Schivaja Schisny* and *Rabotschaja Prawda*.

See also Socialism.

Other Events. A large island north of Siberia was discovered and claimed for the czar under the name "Nicholas II. Land." In March was celebrated the tercentenary of the Romanoff house; the festivities were accompanied by the issue of an imperial ukase providing $25,000,000 for the betterment of agricultural conditions and granting partial or, in some cases, complete amnesty to various grades of political offenders, among whom was the well-known writer and exile, M. Maxim Gorky. The visit of a Russian squadron to the United Kingdom in October directed international attention to the growth of the Russian navy, upon which about $117,490,000 was expended in the current year. In regard to the army an important step was decided on in the spring. The legal term of active infantry service was extended from three to three and one-quarter years in order to strengthen the army in the winter season while raw recruits are being trained.

Foreign Relations. The unsettled condition of the Balkan nations made the year a trying one for the Russian foreign office. Russian interests in the Black Sea basin, the possibility that Bulgaria might obtain a foothold on the Sea of Marmosa, the weakening of Turkey, and its effect on Russian interests in Asia Minor, the promotion of pan-Slavic interests, the diplomatic duel with the Triple Alliance, the preservation of the Triple Entente in spite of divergent interests—these and less obvious considerations complicated the situation. In a general way it may be said that Russia wished to have the Balkan allies successful against Turkey, to have them look to Russia as their patron and protector, to prevent Austria-Hungary from intervening, and to secure such a settlement as would not readily allow of future Austro-Hungarian expansion southwards. It was quite natural that relations with Austria-Hungary should have been strained—the remarkable thing was that peace was maintained. The mission of Prince Hohenlohe, who brought the czar an autograph letter from Francis Joseph in February, was undoubtedly of great importance, coming as it did when misunderstandings and conflicting policies had almost brought the two nations to the point of war. The situation again became critical in March. Just before the fall of Adrianople, Gen. Radko Dimitryev visited St. Petersburg with the object, well-informed newspapers affirmed, of obtaining Russian support for the contemplated attack on Constantinople. While General Dimitryev was at the Russian capital, news of the fall of Adrianople inspired the pan-Slavists with wild enthusiasm. A thanksgiving service was held in the Church of the Resurrection; the Bulgarian national anthem was sung in the street; and the demonstration became so vigorous that the mounted police had difficulty in clearing the streets. The Duma, always enthusiastic over Slavic victories, resented the depression of the demonstration and interpellated the home minister on the subject. M. Maklakov shifted the responsibility to the police. On the following Sunday a procession was held in the Nevsky Prospekt, and banners were displayed with the motto "Scutari to Montenegro." The prefects of St. Petersburg and Moscow thereupon forbade demonstrations. In spite of the prohibition, a demonstration was held in St. Petersburg on April 24 to celebrate the capture of Scutari. Subsequently the excitement subsided as the situation in the Balkans grew less threatening. For subjects not discussed here, see China, *Mongolia;* Turkey and the Balkan Peoples; Persia; Austria-Hungary.

Ritual Murder Case. Small as is its political significance, the "ritual murder case" deserves mention because of the extraordinary interest with which it was followed by the press both in Europe and in America. Mendel Beiliss, a Russian Jew, was accused of murdering a Christian boy, Andrew Yushinsky on March 25, 1911. The murder, it was alleged, was not an ordinary crime, but had been committed in fulfillment of some secret bloody rite of the Jewish religion. Beiliss's co-religionists in all parts of the world repudiated the "ritual murder"; the charge was denounced as baseless by authorities of the Catholic Church; and the prosecution failed to adduce evidence of murderous rites among the Jews. Some sections of the press went so far as to denounce the whole case as a trumped-up charge designed by reactionary elements in Russia to bring the Jewish religion into disrepute and to oppress the Jews. Former instances of anti-semitic agitation in Russia were called to mind, and popular sentiment was strongly aroused by persistent rumors that the reactionary "Black Hundred" was planning a "pogrom," or massacre, of the Jews.

Indignation meetings were held in various quarters of the civilized world; the British labor party passed a resolution of remonstrance; resolutions asking the United States government to protest were introduced in the New York State Assembly, and in the Federal Congress. On November 6 Russia informed the United States that it would receive no protests on the subject.

The trial of Mendel Beiliss began at Kieff on October 8. The accused plead not guilty. Shakhovsky, a leading witness for the prosecution, created a sensation on October 12 by the statement that he accused Beiliss under police threats. On October 21 Kressovsky testified to his suspicions that the boy was murdered not by Beiliss, but by a gang of robbers; and a woman by the name of Vera Tcheberiak was implicated in the crime. It gradually became clear that no substantial evidence of Beiliss's guilt could be produced; and the case for the prosecution received a fatal blow when on the 29th a medical expert testified that the hairs found on the dead boy's clothes could not possibly have belonged to Beiliss. The lawyers finished summing up on November 8, and on the 10th Mendel Beiliss was acquitted, and the decision was promulgated November 24. See also JUDAISM.

RUSSIAN LITERATURE. Though the year 1913 may have added nothing epoch-making or of rare significance to Russian literature, it was not in any sense of the word a lean year. It is true, such noisy modernists as Gorky and Andréev have not kept the Russian literary pot boiling with their old-time intensity in the past twelvemonth; but writers of more recent fame, writers whose names are naturally little known outside of Russia, have done considerable work of real promise, if not genius. These younger contemporary writers, with one or two exceptions, manifest a commendable disregard for the manners and methods of the erstwhile spellbinders of Russian fiction, and an equally laudable regard for the approved literary conventions of the true masters of Russian literature—Gogol, Turgenév, Tolstoy, Dostoévsky, and Anton Chekhov. The result is as it should be: A broader realism, a fresher objectivism, a wholesome optimism, and a much saner art.

These encouraging tendencies are not, to be sure, things of today or of yesterday; discerning Russian readers have noticed them for years and have confidently prophesied the coming of a new era in Russian letters. Among those whose work best exemplified these new tendencies during the last twelvemonth were Ivan Shmelev, Boris Ropshin, Sergéev-Tsensky, A. Chapygin, Boris Zaitsev, Andray Bialy, Ivan Bunin, and Fiodor Sologub.

If the importance of literary events may be judged by the amount of discussion they provoke, then Rapshin's novel, *That Which Was Not*, was certainly the greatest event of the year in Russian fiction. This long novel has a revolutionary theme, while its style and spirit are very reminiscent of Tolstoy. Moreover, the author frankly adopts the great Russian's historical philosophy. For all of this he has been repeatedly charged with plagiarizing the immortal *War and Peace*. This fact, together with the great intrinsic merits of the work, have attracted unusual attention to it.

A less sensational and more deserved success was scored during the year by Sergéev-Tsensky's *Beauty*, a novel which more than sustains its author's reputation as the greatest realist and most genuine artist of his time. It is men like him—his sixth volume of short stories appeared last year—who prove the claim of a "new literature" in the Land of the Czar.

Another new writer of great promise, Chapygin, has published a much-praised novel, *The White Hermitage*, which gives a most vivid picture of peasant life in the "silent north" of Russia. The author, himself from the ranks of labor, enters fully and sympathetically into the lives of the toilers he describes, drawing his characters so well as to suggest Gogol's inimitable gallery.

A first piece of long fiction from a writer of impressionistic short stories was Zaitsev's *Remote Region*, which deals with the revolutionary days of 1904-06, and brings out the smallness of the characters that figured in those eventful times. This work, though not truly a novel, further accentuates the salutary tendencies that characterize Russian literature at the present time.

Dealing also with the revolutionary era, Bialy's *Saint Petersburg*, though not completed within the year under review, possesses sufficient merits to deserve mention in this summary. Mention must be made here, too, of Sologub's pretentious two-volume novel, *Sweeter Than Poison*, even if for no other reason than that its author was hitherto known chiefly as a poet. Finally, there was A. Serafimovitch's notable *City of the Steppe*, a realistic novel full of fine descriptions and interesting characters. Its author belongs to the group of quieter writers, who, naturally, win recognition very slowly in Russia.

Of course all the better known contemporary Russian writers—Korolenko, Kuprin, Chirikov, Gorky, and Andréev—were also heard from during the year; but their contributions were mostly short stories, the enumeration of which would give this brief review the aspect of a mere index. Gorky and Korolenko, however, have attracted unusual attention in 1913—the former by the publication of parts of his autobiography, and the latter by the celebration of his 60th anniversary.

The annual output of verse has been an average one—average in quality and quantity. Among the inevitable collections those of Sologub, perhaps the greatest living Russian poet, and Bunin, one of the foremost younger writers, cannot be passed over without special mention. Sologub's collection contains the choicest gems of his verse, while Bunin's includes many very admirable short stories as well as much real poetry.

In dramatic writing the year has been somewhat above the average. It produced, besides mediocre plays by Andréev (*Professor Storitsin*), A. N. Tolstoy (*The Aggressors*), and Alexander Bloch (*The Rose and the Cross*), Artsybashev's extremely popular social comedy, *Jealousy*. In this the author of the sensational novel *Sanin* makes his début as a playwright. Although his dramatic art is very crude and the plot unconvincing, Artsybashev's drama has had an unprecedented success, having already been staged in Russia and elsewhere. The very uncomplimentary view of woman taken in the play makes its great success, in these days of feminism, still more unaccountable.

A new impetus was given to historical writing by the recent jubilee of the Napoleonic invasion of Russia. Many new studies, based on documents and archives which have only recently come to light, have been published during the year; and every phase of that disastrous historical event is being reconsidered, from the Russian and non-Russian standpoints. Space does not permit, however, specific mention of authors and titles in this prolific field.

From the standpoint of literary history the year's most permanent contributions were the many volumes of letters and collected critical papers. The year brought forth, besides a new volume of Mikhailovsky's scholarly essays, hitherto unpublished letters of Tolstoy, Chernyshevsky, and Chekhov. The last is undoubtedly the most important contribution to Russian literary autobiography made in many a year, for Chekhov's letters shed a most welcome light on the life, art, and philosophical beliefs of one of the most reserved Russian literary masters.

Among new collections, of which 1913 yielded a goodly number, by far the most important is the new volume (the tenth) of Mikhailovsky's papers already referred to. All of this material —and there are over 1000 pages of it—had been unceremoniously suppressed by Russian censorship from the first edition. Hence the present lifting of the ban is a signal triumph for Russian literature. It not only makes generally accessible the precious contents of the tenth volume, but gives promise of the speedy publication of the next, which is to complete the edition of the works of Russia's greatest literary critic and publicist.

RUTGERS COLLEGE. An institution for higher education founded at New Brunswick, N. J., in 1766. The students enrolled in all departments of the college in 1913 numbered 934, of whom 417 were in the full courses leading to a degree; 203 in the short courses in agriculture; and 314 in the summer session. The faculty instructors numbered 61. There were no noteworthy changes in the faculty during the year. Among the gifts received was one of $110,000 from J. Howard Ford, for a dormitory; and the income of $40,000 from Mrs. Russell Moore for the establishment of a professorship of architecture. There were also received $30,000 for a purchase of land. The productive funds amount to about $733,000, and the annual income to about $267,000. The library contains about 72,000 volumes.

RYE. The world's production of rye in 1913 was approximately 1,880,000,000 bushels, or about 40,000,000 bushels less than in 1912. European Russia led all countries with a yield of 986,000,000 bushels, of which 5,960,000 bushels was spring rye. This yield was about 75,000,000 bushels under the yield of the previous year. Germany, ranking next, produced 488,561,000 bushels, of which 5,913,000 bushels was obtained from spring sowing. The average yield per acre of the fall and spring sown crops, 28.9 and 19.8 bushels respectively. Total production and rate of yield were the highest recorded for 10 years. The production of Austria, which stood next in importance, was 114,115,000 bushels. Other countries yielding more than the United States were Hungary, which produced 56,000,000 bushels, and France with a crop of 53,360,000 bushels. The United States produced 41,381,000 bushels on 2,557,000 acres, as compared with 35,664,000 bushels on 2,117,000 acres in 1912. Although a long and severe drouth prevailed during the season, this had little effect upon the rye crop, which matured before the drouth became serious. In a measure the dry weather was of benefit to the crop as it greatly favored its harvest. The average yield per acre in 1913 was 16.2 bushels and in 1912 16.8 bushels. The farm price on December 1, 1913, was 63.4 cents per bushel and on the same date in 1912, 66.3 cents. The values of the two crops on this basis were $26.220,000 and $23,636,000 respectively. While 39 States reported yields, the bulk of the crop was grown in six or seven States. The leading States and their production were as follows: Wisconsin, 7,438,000 bushels; Minnesota, 5,700,000 bushels; Michigan, 5,362,000 bushels; Pennsylvania, 4,900,000 bushels; and New York, 2,288,000 bushels. In addition to these only North Dakota, Nebraska, Ohio, Indiana, New Jersey, and Iowa, mentioned in decreasing order of yield, produced over 1,000,000 bushels. Wisconsin increased its acreage from 341,000 acres in 1912 to 425,000 acres in 1913, while North Dakota increased its area from 48,000 to 125,000 acres, and Nebraska from 55,000 to 120,000 acres. The highest average yield, 22 bushels per acre, was secured in Idaho, being followed by Montana and Washington with 21 bushels. The lowest average yield, 9.5 bushels per acre, was secured in Georgia and Oklahoma. The Canadian crop, which amounted to 2,425,000 bushels, was about 200,000 bushels less than in 1912.

SABINE, William Tufnell. An American bishop of the Reformed Episcopal Church, died August 11, 1913. Born in New York City in 1838, he graduated from Columbia College in 1859, and from the General Theological Seminary in New York in 1862. Ordained priest in 1863, in the same year he became pastor of the Covenant Church in Philadelphia, and subsequently was appointed pastor of the Church of the Atonement in New York City. In 1874 he severed his connections with the Protestant Episcopal Church to become a member of the Reformed Episcopal Church, and in the same year he was appointed pastor of the First Reformed Episcopal Church of New York. In this pastorate he served until 1907. He was elected bishop of the New York and Philadelphia synod in 1902.

SAFETY AT SEA. One of the results of the loss of the *Titanic* on April 14, 1912, was the appointment of a departmental committee in August, 1912, to advise the British Board of Trade how best the safety of life on passenger vessels at sea could be secured, considering in particular the number, and most efficient arrangement of stowing life-boats in steamships of all classes, apparatus for launching them in an emergency, mechanical appliances for the propulsion of such life boats, the question of rafts as a substitute for life boats, and other points of a similar bearing. This committee reported in June, 1913, and its report took up in detail the stowage of boats and the use of pontoon rafts for home-trade passenger vessels, as well as buoyant deck seats and other appliances that would act as life preservers. It dealt with the use and provision of life jackets and life buoys, and discussed in detail applications for launching boats, including the various forms of davits, cranes, etc., but without positive recommendation, the conclusions of the committee being that the board of trade should specify themselves as to the efficiency of the various devices used. The report further discussed the use of mechanically propelled life boats and recommended that the carrying of one be made optional for all classes of steamships, and that in general two motor boats on each side should be sufficient; but that they should be as large and as powerful as possible and carry fuel for a radius of 100 miles. The general tenor of the report was that the efficiency of life-saving at sea depended as much upon the competency of the officers and crew as upon life-saving appliances, and impressed the necessity for strict discipline and obedience.

As contrasted with discussion and the formulation of rules and regulations, mention should be made of the fact that during the year 1913, at the time when trans-Atlantic navigation was likely to be threatened by the presence of icebergs, the United States government provided revenue cutters to patrol the courses. These vessels were equipped with wireless apparatus of sufficient power to send bulletins of warning over long distances, and also carried scientific observers to study various methods of detecting the presence of ice.

Preliminary to the international conference to be held at London, Secretary of Commerce Redfield formed a committee on aids and perils to navigation, which recommended various devices for safety and changes in rules of the route. It also recommended that lanes for the various trans-Atlantic liners should be made obligatory, and that an ice patrol, supported by the coöperative action of the important maritime nations, should be begun on April 1. The committee further recommended that the United States should continue the destruction of derelicts in the North Atlantic west of a line drawn from Cape Sable to latitude 34°, longitude 70°, and thence through the Bahamas, and that other maritime nations be assigned the work of removing, or destroying, such menaces to navigation east of said line.

In the meantime in the United States Senate there was considerable discussion of a bill to improve conditions of navigation, so far as safety was concerned, by regulations regarding the rating of sailors employed and providing that an annually increasing per cent. of all crews should be able to understand the language in which orders are given, and that life-boat drills should be conducted under new and rigorous rules.

The International Conference on Safety at Sea was opened in London on November 12, 1913, with the object of securing coöperation and agreement among the great powers of the world in regard to measures for securing conditions as to safety in the case of passenger steamers and the maritime passenger traffic generally. The sessions were held in secret, and no report of them was expected until the close of the conference, which was still in progress at the end of the year.

Disasters at Sea. The year 1913 was one of the worst ever experienced by marine insurance companies (see *Marine Insurance* under Insurance), and the loss estimated for the various casualties was given as in excess of $35,000,000. There were reported 5940 accidents of all descriptions to vessels of 500 tons and upwards, of which collisions were responsible for 2017, stranding for 1696, weather damage for 1039, and fires and explosions for 456. Ships to the number of 235, and aggregating 527,884 tons, were totally lost, of which 68 were British and 167 were of other nationalities. Of these 17 were posted at Lloyds as missing. The biggest losses of the year are indicated in the following table which gives the names and values of the ships and cargoes as was stated approximately at the time. The loss to the United States and Canada on the Great Lakes was estimated at over $5,000,000.

LARGER LOSSES OF 1913

STEAMER	VALUE
Clan Mackensie, Clan liner, Mersey for India, wrecked near Cadiz, with valuable general cargo	$1,000,000
Veronese, Lamport and Holt liner, outward bound from Liverpool to South America, wrecked near Vigo	950,000
Eastwell, wrecked at Ymudien	650,000
Estonia, Russian East Asiatic liner, abandoned, on fire, bound from Gothenburg to Japan	500,000
Volturno, Canadian Northern liner, on charter, bound from Rotterdam to Halifax	325,000
Haddon Hall, wrecked in Saldanha Bay	630,000
Camphill, wrecked off Cape Agulhas	550,000
Amiral Exelmans, French liner, wrecked off Cape Palmas while bound from Havre to East Africa ports	750,000
Tyrone, wrecked on Otago Head, New Zealand	750,000
Canterbury, foundered off Karatsu	500,000
City of London, sunk through collision, reported from Cleveland, O.	225,000
Aberlour, wrecked on Azalea Reef, Naura for Antwerp	200,000
Hektor, wrecked at Dyer Islands	425,000
Bries Huel, foundered in Morte Bay	260,000
Peruvia, Narvik for Emden (missing)	225,000
Glenalvon, sunk in the Elbe	215,000

Other losses during the year were:

Gardenia, sunk through collision in North Sea.

Clarence, wrecked off Marsh Point, Hudson Bay.

C. C. Hand, American lake steamer, sunk after being on fire.

Merced, wrecked at Point Garda, San Francisco for Portland.

Tell, stranded near Cap Camaret.

Kinneil, sunk through collision near the Scaw.

Cyclops, wrecked near Montevideo.

Ville de Toulon, dredger, foundered while in tow.

Regina Margherita, sunk at Genoa.

Paulina, ashore at Dally Bay.

Troga, wrecked at the South Orkneys.

Christiania, sunk near Borkum after collision.

Astillero, sunk near Sicily after collision.

Poseidon, missing. Newcastle for Spezzia.

Parana, ashore at Montevideo.

Alum Chine, wrecked by explosion at Baltimore.

Arnfrid, ashore at Cape Eugano.

Fred Jones, dredger, destroyed by fire.

Agadir, R. M. S. P., stranded at Mazagan.

Boeton, new Dutch liner, stranded near Hartlepool on trial trip.

Auchenarden, sunk outside Liverpool after collision.

La Blanca, damaged in collision with *Auchenarden*.

Loss of the Steamship "Volturno." On October 10, 1913, the British steamship *Volturno*, a Canadian Northern liner, on charter, bound from Rotterdam to Halifax, Captain Inch, was destroyed by fire in mid-Atlantic, and 136 lives were lost. Again wireless telegraphy was able to bring valuable assistance, and the ship was soon surrounded by various other liners. The ship carried 657 passengers and crew. Of these 540 were emigrant steerage passengers, of whom 521 were rescued. The fire was due to an explosion of chemicals in the cargo, and, as soon as it was found to be beyond control, a wireless distress signal was sent out. The first ship to reach the scene of the disaster was the Cunard liner, *Carmania*, which arrived at noon of October 11. A raging gale prevented rescue in spite of the lowering of a boat by the *Carmania*, and the big ship was unable to take off the passengers. In the meantime nine other vessels, the *Grosser Kurfürst*, the *Seydlitz*, the *Kroonland*, the *Devonian*, *Rappahannock*, *Minneapolis*, *La Touraine*, *Czar*, and *Narragansett*, the last-named an oil-tank vessel, arrived on the scene, and, with the abatement of the storm, boats were launched, which picked up a number of passengers and crew. The use of the oil from the *Narragansett* aided considerably in smoothing the waters and made possible much of the rescue work.

See also UNITED STATES, *Congress*, sub-section *Safety at Sea*.

ST. ANDREW, BROTHERHOOD OF. An organization for the spread of religious faith among young men of the Protestant Episcopal Church. It is divided into senior and junior chapters. In 1913 there were 864 active senior chapters, and 524 active junior chapters. The membership of the Brotherhood is about 15,000. It maintains several field secretaries. In 1913 was observed the 13th anniversary of the founding of the brotherhood. The official organ is the *St. Andrew's Cross*. The 28th national convention was held in New York City from April 1 to 5, 1913.

ST. HELENA. A British island in the south Atlantic Ocean. Area, 47 square miles; population (1911), 3520. Capital, Jamestown (1439 inhabitants). The imports and exports were valued in 1911 at £42,412 and £9959, respectively. Revenue (1911), £11,122 (grant-in-aid, £2500); expenditure, £9129. Shipping entered and cleared, 172,358 tons. Governor (1913), Major H. E. S. Cordeaux.

ST. KITTS (or ST. CHRISTOPHER) **AND NEVIS.** A presidency (with Anguilla) of the the Leeward Islands (q.v.). Capital, Basseterre (8469 inhabitants). Sugar-cane (17,000 acres), sea-island cotton (5000), arrowroot, etc., are grown; tobacco, once the main staple, is now of little importance. In 1911, 11,130 tons of sugar, 2339 puncheons of molasses, 19,380 gallons of rum, and 782,933 pounds of sea-island cotton were exported. External trade (calendar years) and finance (fiscal years) statistics for the presidency follow:

	1908-9	1909-10	1910-11	1911-12
Imports	£184,002	£172,220	£195,277	£306,666
Exports	180,539	182,446	205,693	190,747
Revenue.......	47,913	48,122	52,748	58,002
Expenditure...	46,443	48,698	49,872	50,736
Shipping * ...	638,751	593,932	625,686	685,852

* Tonnage entered and cleared.

Customs revenue (1911-12), £37,094. Public debt, £48,734. Acting administrator, 1913, Captain A. Roger. See LEEWARD ISLANDS.

ST. LUCIA. One of the (British) Windward Islands colonies. Area, 233 square miles; population (1911), 48,637. Capital, Castries (population given as 6266). It has a fine harbor, latterly greatly improved. Severe epidemics of small-pox and cholera have retarded development, but recent conditions show better sanitation and a tendency to less frequent outbreaks. The activities of the rapidly spreading mongoose have reduced the number of reptiles, formerly numerous, to a minimum. Principal exports are cacao, sugar, limes, logwood, and spices. Imports, 1911, £318,591; exports, £273,111; revenue (1911-12), £71,979; expenditure, £69,329. Tonnage entered and cleared (1911-12), 3,996,163. E. J. Cameron was administrator in 1913.

SAINT-PIERRE AND MIQUELON. A French island colony off the southeastern coast of Newfoundland, including some smaller islands. The total area is 241 square kilometers (93 square miles), with a population of 6482. The imports for 1910 were valued at 5,114,000 francs and the exports at 9,394,000 francs. The local budget for 1910 balanced at 489,000 francs. The administrator in 1913 was M. Marchand.

ST. THOMAS. See SÃO THOMÉ.

ST. VINCENT. One of the (British) Windward Islands colonies. Area, between 140 and 150 square miles; population, 41,877. Capital, Kingstown (4300 inhabitants). The principal products and exports are sugar, rum, cacao, arrowroot, and cotton. Imports, 1911, £110,926; exports, £118,625; revenue (1911-12), £34,852; expenditure, £33,735. Debt (1912), £550. Administrator in 1913, G. Gideon Murray.

SAKHALIN. An island off the eastern coast of Siberia; divided into Russian Sakhalin, with 16,370 square miles and 12,000 inhabitants, and the Japanese territory of Karafuto, with 13,155 square miles and 31,017 inhabitants at the end of 1910. Its fisheries are valuable and timber is abundant.

SALNARSITE. See MINERALOGY.

SALONS, THE PARIS. See PAINTING AND SCULPTURE.

SALVADOR. A Central American republic, situated on the Pacific coast and bordering Guatemala and Honduras. The capital is San Salvador.

AREA AND POPULATION. The area is officially stated at 34,126 square kilometers, but a recent planimetric calculation shows 21,160 square kilometers (8170 square miles). The estimated population at the beginning of 1913 was 1,200,000. Although the people are largely mestizo and Indian, they have achieved a considerable degree of economic development and governmental stability. In 1911 and 1912, births numbered 49,179 and 49,999, respectively; deaths, 26,472 and 24,925. The larger towns include: San Salvador, with about 60,000 inhabitants; Santa Ana, 59,136; San Miguel, 25,000; Ahuachapán, 20,600; San Vincente, 20,400; Chalchuapa, 20,400; Zacatecoluca, 20,000; Nueva San Salvador 19,000.

EDUCATION. In 1911, there were 486 public primary schools, with 851 teachers and 21,569 pupils. Children of school age numbered 173,495. Besides a number of private schools, there are several institutions for secondary and special instruction.

PRODUCTION AND COMMERCE. Agriculture constitutes the principal source of wealth, but mining is increasing in importance. The leading crop is coffee, to which 166,000 acres were planted in 1912, the estimated yield being about 70,000,000 pounds. Other products are cacao, rubber, tobacco, sugar, bananas, and indigo.

In 1911 and 1912 imports were valued at $5,113,518 and $6,774,859, respectively; exports, 22,208,380 pesos and 22,341,987 pesos. The average value of the silver peso in 1911 was about 42.5 cents and in 1912 about 44.5. cents; accordingly the gold value of exports in those years may be stated at $9,438,561 and $9,942,184 respectively. Leading imports in 1911 and 1912, in thousands of dollars (gold): Cotton cloth and manufactures, 1768 and 2017; hardware, 279 and 564; drugs and medicines, 208 and 419; flour, 263 and 393; boots, shoes, and findings, 259 and 214; cotton yarn, 175 and 181; machinery, 88 and 215. Principal exports in 1911 and 1912, in thousands of dollars (gold): Coffee, 6871 and 7765; gold in bars, 973 and 608; gold and silver amalgams, etc., 125 and 799; sugar 389 and 168; indigo, 261 and 95; balsam, 88 and 78. In 1912, imports from and exports to the United States were valued at $2,627,700 and $2,955,794, respectively; United Kingdom, $1,904,546 and $295,874; Germany, $664,674 and $2,294,500; France, $397,252 and $1,510,492; Italy, $288,400 and $941,137; Mexico, $239,931 and $12,634; Belgium, $224,275 and $11,108.

COMMUNICATIONS. The length of railway in operation is reported at 291 kilometers. The San Miguel to Usulután railway was opened to traffic in September, 1913. As stated for 1912, there were 3788 kilometers of telegraph line, with 203 offices. Post offices, 117.

FINANCE. The value of the peso fluctuates with the price of silver; in 1910, the peso was worth about 40 cents, in 1911 about 42.5 cents, and in 1912 about 44.5 cents. Revenue and expenditure in the fiscal year 1912 are reported at 16,190,338 and 16,678,370 pesos. Of the receipts, 8,324,869 pesos were from customs; of the disbursements, 4,295,771 were for the public debt and 3,544,347 for war and marine. The budget for the fiscal year 1914 showed estimated revenue and expenditure of 14,450,966 and 14,533,236 pesos. Public debt January 1, 1913: Foreign, 17,729,022 pesos; internal, 6,434,544; treasury bonds, 3,730,770; total, 27,894,337.

GOVERNMENT. The legislative power rests with the National Assembly of 42 members elected by direct vote. The president is elected by direct vote for four years and is assisted by a cabinet of four members. On March 1, 1911. Manuel Enrique Araujo was inaugurated president, succeeding General Fernando Figueroa. President Araujo was assassinated in February, 1913, dying on the 9th of the month. He was succeeded by Carlos Meléndez for the term ending March 1, 1917. The members of the cabinet are: Martinez Suarez, exterior, instruction, justice; Samuel Luna, interior; Dr. Ramon Garcia Gonzalez, finance, agriculture; Colonel Jose Maria Peralta, war and marine.

An executive decree issued in 1913 provided for the erection of granaries in the capitals of the departments of the republic, to be used by producers, under the supervision of the minister of agriculture (fomento), to hold products for higher prices. The depositors pay 3 centavos a month per *fanega* (1.57 bushel) of grain.

SALVAGE. See SAFETY AT SEA.

SALVARSAN ("606"; ARSENO-BENZOL). This drug continued to be widely employed during the year 1913, in spite of the number of disastrous results. Syphilologists seem to agree that these are more than overbalanced by the general good effects of this remarkable substance. It was largely replaced, however, by a modified form, NEOSALVARSAN (q.v.) which was stated to be somewhat less toxic.

SALVATION ARMY. The following are most interesting and important statistics relating to the work of the Salvation Army for the year ending September 30, 1913. There were on that date in the United States 869 corps and outposts. The attendance at indoor meetings was 7,353,336, and at open-air meetings 160,396. The converts numbered 47,921. The Army supported 91 hotels, with accommodations for 7674 persons; 124 industrial homes with accommodations of 3139; 28 rescue and maternity homes; and 5 children's homes. Persons afforded temporary relief outside of industrial homes and hotels numbered 691,597. Summer outings were given to 7791 mothers and 41,292 children. There were distributed 1,800,654 pounds of ice, and 5,010,227 pounds of coal.

In its international aspects, the Army occupied 58 countries and colonies, and preached its gospel in 34 languages. There were 9415 corps and outposts; 1142 social institutions; 572 day schools; and 10 naval and military homes. There were issued 81 periodicals, and the total copies of these distributed numbered 1,029,804. During the year the new commander, H. Bramwell Booth, visited the United States and was cordially received.

SAMIRESITE. See MINERALOGY.

SAMOS. An Anatolian island; a principality tributary to the Porte, previous to November, 1912, covering an area of 468 square kilometers (181 square miles) and having a population of 53,424 in 1902, besides 15,000 natives of Samos residing on the Anatolian shore. The capital is Vathy, with about 8000 inhabitants. The imports in 1911 were valued at 37,036,352 piasters, and the exports at 19,741,212 piasters. The export of wine was valued at 8,595,000 piasters, tobacco 2,875,000, leather 2,764,000, cigarettes 1,492,000. The 1910 budget estimated the revenue at 3,651,660 piasters and the expenditure at 3,627,496. The debt amounts to 2,570,500 piasters. Upon the assassination of Kopassis Effendi in March, 1912, Turkey sent Begleris Bey to administer the country as prime-governor. In November, 1912, the island was occupied by Greek troops, and since that date has been administered by a Greek governor—M. Sephoulis, the former leader of the popular party in Samos against the Turks.

SAN DIEGO EXPOSITION. See EXPOSITIONS.

SAN FRANCISCO. See AQUEDUCTS; GARBAGE AND REFUSE DISPOSAL; and MUNICIPAL GOVERNMENT.

SAN FRANCISCO EXPOSITION. See EXPOSITIONS.

SANITATION. The continued decline of death rate in many cities, and particularly the reduction in typhoid fever and infant mortality, is in considerable measure due to improved sanitation, notably as regards the water and milk supplies, the elimination of privies and cesspools and the reduction of domestic flies and malaria-spreading mosquitoes. This subject was discussed at length in the 1912 YEAR BOOK See also GARBAGE AND REFUSE DISPOSAL; SMOKE ABATEMENT; SEWAGE PURIFICATION; WATER PURIFICATION; VITAL STATISTICS.

SANTO DOMINGO. See DOMINICAN REPUBLIC.

SÃO THOMÉ AND PRINCIPE. A Portuguese island colony off the coast of French Equatorial Africa. The total area is 939 square kilometers (374 square miles) and the population was estimated in 1909 at 68,221. The principal product and export is cacao, a large part of the world's supply originating in the colony. The powers have made representations protesting against prevailing methods of coercion of indentured labor. Imports 1910, 3,197,830 milreis (2,912,035 in 1909); exports, 9,896,000 (8,150,632). The budget for 1910-11 showed 931,429 milreis revenue and 703,315 milreis expenditure. Governor, 1913, M. Martins.

SAPPHIRE. See GEMS AND PRECIOUS STONES.

SARATOGA SPRINGS. The board of commissioners of the State Reservation at Saratoga Springs, N. Y., created by appointment by Governor Hughes under the statute of 1909, were contemplating the construction of a large bath house and a central drink-hall, together with the necessary buildings to provide the equipment of a modern health resort to be erected in 1914. The purchase of lands and mineral rights by agreement or by condemnation, naturally proceeded slowly. The termination of the pumping of the waters by commercial carbonic acid gas companies resulted in immediate recovery of the springs and the restoration of the waters. During the year 1913 many unnecessary bores and wells had been closed, additional waters were analyzed by the State Board of Health, graphs of water levels had been made, examinations and determinations of the interrelation of the springs had been pursued, artesian wells had been tested at many levels to ascertain the depth of the best veins of mineral water, new spouting springs had been developed from former "dry wells" or pumped bores, and arrangements had been made for free service of the waters at many springs.

The city coöperated with the State at many points. It bought a hotel, Congress Hall; razed it to the ground, and added its site to the acreage of public park comprised by the old Congress Park, and Canfield Park, thus combining in one continuous parcel ten acres of markedly rolling land, with lakes and brooks, evergreen and deciduous trees, broad lawns and winding paths, and including the old Congress Spring and Columbian Spring pavilions and the Casino, formerly the Canfield (and still less recently John Morrissey's) gambling house, with the Italian Garden.

Of about 100 wells, springs, and bores, many were to be sealed permanently, several were to spout unfettered for scenic effect, and about twelve were to be used for bathing or drinking purposes. The bathing springs, like all their fellows, are supersaturated with carbonic acid gas, and are suitable for giving such treatments as are administered in the spas of Europe, so many and varied are they. The drinking waters comprise saline-laxative, cathartic, alkaline, chalybeate or ferruginous, iodic, and several strongly lithic springs, and are thus adapted for many ailments, especially gastro-intestinal disorders, diseases causing tissue change, and obesity. A new spring water was developed in 1913, the Minnonebe, a mildly antacid, alkaline table water, with half as much alkaline constituent as Grande Grille Vichy, which it resembles in effect. Additions to the bottled waters were made in 1913, so that the market now affords Hathorn No. 1 (laxative, alterative, tonic), Hathorn No. 2 (cathartic, tonic, lithic), Coesa (mild, saline, laxative, lithic), Geyser (antacid, ferruginous, alkaline table water), and Minnonebe.

Late in the year Dr. Albert Warren Ferris became the medical expert to the commission, and was to be closely identified with the future development and construction, as superintending director. The Geyser Park, a tract of 250 acres, was much developed during 1913, paths and drives being laid out in its forests and along its mile of picturesque Coesa Creek, and near its spouting springs. A visit of two weeks from Paul Haertl, Ph.D., director of the balneological and chemical laboratories of Bad Kissingen, and an expert on mineral waters and their handling, was productive of much benefit in technical instruction and counsel. Frederick Edwards, C.E., continued to be the engineer, in addition to whose services was obtained in December the consulting advice of Professor Charles G. Anthony, C.E., of the faculty of Union College, who was sent to Europe to study technical matters connected with transportation of carbonated waters and their storage. A trip to various English and Continental spas was made for the commission by Dr. Simon Baruch, professor of hydrotherapy in Columbia University, who without remuneration made extensive and valuable reports on general methods and results. The commissioners are Hon. George Foster Peabody, General Benjamin F. Tracy, and Senator Frank N. Godfrey, who serve without remuneration. The development planned will result in a large pecuniary profit for the State. See HYDROTHERAPY, and RADIOTHERAPY.

SARAWAK. A British protectorate covering about 42,000 square miles in the northwestern part of the island of Borneo, with an estimated population of 500,000. Capital, Kuching (25,000 inhabitants). Gold, coal, and other minerals exist in export quantities. Timber, coffee, and pepper are exported. Total imports, 1911, 8,572,624 S. S. dollars; exports, 9,563,485; revenue, 1,420,420; expenditure, 1,341,761. Shipping entered, 55,537 tons; cleared, 58,856. Rajah, Sir Charles Johnson Brooke (C. Vyner Brooke, rajah muda, acting).

SASKATCHEWAN. A province of the Dominion of Canada. Area, 251,700 square miles; population (census of June 1, 1911), 492,432 (91,279 in 1901). Regina is the provincial capital, with 30,213 inhabitants in 1911; its population, along with that of other principal towns in the province, has increased enormously since the census was taken. The province is administered by a lieutenant-governor—G. W. Brown in 1913 (appointed October 5, 1910). Premier in 1913, Walter Scott. See section so entitled under CANADA, DOMINION OF.

SAULSBURY, WILLARD. An American pub-

[Formerly Canfield Park]

THE BEAUTIFUL ITALIAN GARDENS IN TEN-ACRE CONGRESS PARK, THE PROPERTY OF THE VILLAGE

LEAPING WATER, ONE OF MANY SPOUTING MINERAL SPRINGS IN GEYSER PARK OF 250 ACRES

SARATOGA SPRINGS

lic official, elected in 1913 United States senator (Democrat) from Delaware. He was born in Georgetown, Delaware, in 1861, and was educated in private schools and in the University of Virginia. He studied law and in 1882 began practice at Wilmington, which he continued until his election to the Senate. He also took an active part in business and was an officer or director in many important financial institutions. In 1900-06 he was chairman of the Democratic State committee and was a delegate to the Democratic national convention at Chicago in 1896, and at St. Louis in 1904. In 1908 he was a member of the Democratic national committee and a member of the executive committee of that body. He was six times the caucus nominee of the Democratic party for United States senator. He was elected for the unexpired term of Isador Rayner, who died in 1912.

SAVERNE INCIDENT. See Germany, *Zabern Incident.*

SAVINGS BANKS. In the United States there are two general classes of savings banks, mutual and stock. The mutual savings banks are the prevailing type in the New England and Eastern States, while stock savings banks predominate through the Middle West. On June 4, 1913, there were 623 mutual savings banks and 1355 stock savings banks in the United States. The aggregate deposits of these banks were $4,727,403,000, credited to 10,766,936 depositors. These figures show an increase of 756,632 in the number of depositors and $275,585,000 in the amount of deposits, as compared with 1912.

The total resources of the mutual banks were $4,104,639,000, of which the principal items were: Loans and discounts, $2,038,915,000; bonds and other securities, $1,818,633,000. Among the liabilities were surplus and undivided profits of $330,175,000; and individual deposits of $3,769,555,000. The States showing the largest number of depositors in mutual savings banks and their total deposits were as follows: New York, 3,144,240 depositors with $1,700,063,000 deposits; Massachusetts, 2,249,-824 depositors, with $861,416,000 deposits; Connecticut, 616,530 depositors with $306,428,-000 deposits; Pennsylvania, 491,668 depositors with $208,057,000 deposits; New Jersey, 318,-103 depositors with $111,780,000; and Maryland, 239,379 depositors with $97,031,000 deposits.

The stock savings banks, although more than twice as numerous, had resources of only $1,120,845,000. Their deposits aggregated $956,917,000. Of these banks 870 were in the Middle Western States, 192 in the Southern States, 58 in the Western States, and 179 in the Pacific States.

By a statement furnished the comptroller of the currency by Mrs. S. L. Oberholtzer, it appeared that school savings banks were in operation at the beginning of the year in 1200 schools in 201 towns and cities of the United States; and that 210,320 pupils had deposited during the preceding year $4,305,000 and withdrawn $3,143,550, leaving on deposit $1,101,450.

See also Banks and Banking.

The table on the following page, computed by the Department of Commerce, gives latest statistics for savings banks of the world.

SAVINGS BANKS, Postal. See Postal Savings Banks.

SAWTELLE, Charles Greene. An American soldier, died January 4, 1913. He was born in Norridgewock, Me., in 1834, and graduated from the United States Military Academy in 1854. In the following year he entered the army, and served in the Sioux expedition. He was promoted through the various grades, becoming staff captain and assistant quartermaster in 1861. In the following year he was appointed lieutenant-colonel of the United States volunteers. He served throughout the Civil War, rising to the rank of brevet brigadier-general. At the close of the war he was appointed major and staff quartermaster in the regular service, and rose through the different grades until in 1896 he was made brigadier-general and quartermaster-general. During the Civil War he was engaged as chief quartermaster in many of the more important operations. He remained in the quartermaster's department until he was retired at its head in 1897.

SAXONY. See Germany, *Other States.*

SCANDINAVIAN LITERATURE. Danish. The main characteristics of contemporary Danish literature are a revolt against realism, the rise of a new form of romanticism, and a new interest in Danish life and culture of the present and the past.

Drama. Among the best plays of the year is Helge Rode's *Grev Bonde og hans Hus* (*Count Bonde and His House*), which reminds one of the life—and particularly of the death—of Tolstoy. *Affæren* (*The Business House*), by Henri Nathansen, shows the complications arising in a business office. Edith Rode's *Sejren* (*Victory*) and Henry Kistemaecker's *Ildprøven* (*The Fire Test*) both met with success.

Poetry. Blaaregn (*Blue Rain*), by Sophus Michaelis, is rich in ideas. The volume contains poems of widely different kinds, not always, however, in the best vein of the author. Kai Hoffmann's *Hav og Rum* (*Sea and Space*) shows strong lyric power. Hans Ahlmann's *Aftenlandet* (*The Occident*) is a volume of poems of remarkable technical perfection.

Fiction. Otto Rung's *Den lange Nat* (*The Long Night*) is a good picture of the desolate old age of a selfish speculator. Karl Gjellerup's *Rudolf Stens Landpraxis* (*The Country Practice of Rudolf Sten*) describes the change taking place in a physician during one year spent in the country, and is somewhat autobiographic in character. *De der tog hjemmefra* (*Those Who Left Their Country*) is the third book by Karl Larsen about Danish emigrants in America. Henrik Pantoppidan surpassed his own high standard in *Storeholdt*, the sequel of *Torben og Jytte* (*Torben and Jytte*). Knut Hamsen is still interested in old age. In *Børn av Tiden* (*Children of the Time*), the most important character is an old man who endures the hardships and vicissitudes of life in the spirit of a conqueror. Sven Leopold's *En Nat i Esrom* (*A Night in Esrom*) and Aage Madelung's *Forvandlinger* (*Changes*) are good collections of short stories; the latter shows strong Russian influence.

Norwegian. *Drama.* Several good plays were written through the year, mostly satire. Gunnar Heiberg's *Paradesengen* (*The Bed of*

STATISTICS OF SAVINGS BANKS

Countries	Population	Date of report	Form of organization	Number of depositors	Deposits	Average deposit account	Average deposit per inhabitant
Austria	28,572,000	Dec. 31, 1910	Communal and private savings banks	4,262,108	$1,227,170,258	$287.98	$42.95
		Dec. 31, 1911	Postal savings banks, savings department	2,261,658	46,319,119	20.48	1.62
		do	Postal savings banks, check department	110,074	89,938,872	817,03	3.15
Belgium	7,579,000	Dec. 31, 1912	Government savings banks	3,013,296	204,147,391	67.75	26.94
		Dec. 31, 1911	Communal and private savings banks	48,729	11,798,579	242.13	1.56
Bulgaria	4,335,000	Dec. 31, 1910	Postal savings banks	280,775	9,129,433	32.52	2.10
Chile	3,415,000	June 30, 1910	Savings banks	268,731	10,543,275	39.23	3.09
Denmark	2,757,000	Mar. 31, 1911	Communal and corporate savings banks	1,191,365	181,983,316	152.75	66.01
Egypt	11,626,000	Dec. 31, 1912	Government savings banks	265,003	2,819,947	10.64	.24
France	39,602,000	do	Private savings banks	8,391,694	754,409,859	89.90	19.05
		Dec. 31, 1911	Postal savings banks	5,970,839	328,890,226	55.08	8.31
Algeria	5,564,000	Dec. 31, 1909	Municipal savings banks	19,427	1,309,769	67.42	.24
Tunis	1,923,000	Dec. 31, 1911	Postal savings banks	5,567	1,397,357	251.01	.73
Germany	64,432,000	do	Public and corporate savings banks	22,349,570	4,241,560,792	189.78	65.83
Luxemburg	260,000	do	State savings bank	71,230	12,127,147	170.25	46.64
Hungary	20,886,000	Dec. 31, 1909	Communal and private savings banks	1,149,251	428,023,064	372.44	20.49
		Dec. 31, 1911	Postal savings banks, savings department	823,251	23,653,855	28.73	1.13
		do	Postal savings banks, check department	22,608	25,758,397	1,139.60	1.23
Italy	34,814,000	do	Communal and corporate savings banks	2,307,408	475,288,597	205.98	13.65
		Dec. 31, 1912	Postal savings banks	5,780,010	376,072,448	65.06	10.80
Japan	51,646,000	Dec. 31, 1911	Private savings banks	8,071,087	81,458,012	10.09	1.58
		Mar. 31, 1913	Postal savings banks	12,584,743	96,495,896	7.67	1.87
Formosa	3,411,000	Dec. 31, 1911	Private savings banks	6,838	151,563	22.16	.04
		Mar. 31, 1912	Postal savings banks	143,650	1,133,847	7.89	.33
China and Korea	....	do	do	297,383	3,889,908	13.08	....
Netherlands	6,022,000	Dec. 31, 1910	Private savings banks	451,747	44,573,861	98.67	7.40
		Dec. 31, 1911	Postal savings banks	1,556,950	68,726,245	44.14	11.41
Dutch East Indies	37,957,000	Dec. 31, 1910	Private savings banks	13,228	2,887,566	218.29	.08
		Dec. 31, 1912	Postal savings banks	102,486	3,789,750	36.98	.10
Dutch Guiana	86,000	Dec. 31, 1911	do	10,268	361,067	35.16	4.20
Norway	2,415,000	do	Communal and private savings banks	1,030,820	144,538,398	140.22	59.85
Rumania	6,866,000	July 1, 1910	Government savings banks	218,690	11,616,820	53.12	1.69
Russia	163,779,000	June 30, 1912	State, including postal savings banks	8,189,734	784,117,885	95.74	4.79
Finland	3,145,000	Dec. 31, 1911	Private savings banks	308,933	48,431,375	156.77	15.40
		do	Postal savings banks	66,002	1,530,935	23.20	.49
Spain	19,660,000	Dec. 31, 1912	Private savings banks	573,349	55,943,487	97.57	2.85
Sweden	5,562,000	Dec. 31, 1911	Communal and trustee savings banks	1,612,113•	229,677,914	142.47	41.29
		do	Postal savings banks	565,759	12,645,957	22.35	2.27
Switzerland	3,555,000	Dec. 31, 1908	Communal and private savings banks	1,963,417	307,386,431	156.56	86.47
United Kingdom	45,663,000	Nov. 30, 1912	Trustee savings banks	1,870,510	261,8.5,606	140.00	5.73
		Dec. 31, 1912	Postal savings banks	12,750,693	886,211,861	69.50	19.41
British India	244,221,000	Mar. 31, 1912	do	1,500,884	61,313,176	40.85	.25
Australia (Commonwealth)	4,733,000	1912-13	Governm't, trustee, and joint-stock savings banks	1,895,768	355,360,823	187.45	75.08
New Zealand	1,008,000	Dec. 31, 1911	Postal savings banks	405,566	75,640,920	186.51	75.04
		do	Private savings banks	54,036	8,035,930	148.71	7.97
Canada	7,758,000	June 30, 1913	Postal savings banks	145,396	41,885,255	288.08	5.40
		do	Government savings banks	34,309	4,140,754	412.16	1.82
British South Africa	6,844,000	1911-12	Government, postal, and private savings banks	239,446	32,279,008	134.81	4.72
British West Indies	1,683,000	1911-12	Government and postal savings banks	94,838	6,432,097	67.82	3.82
British Colonies, n. e. s.	20,427,000	1911-12	do	224,858	13,542,.47	60.23	.66
Total, foreign countries	862,156,000			115,576,045	12,108,411,085	104.59	14.04
United States	97,028,000	June 30, 1913	Postal savings banks	330,703	33,818,870	102.26	.35
		June 4, 1913	Mutual and stock savings banks	10,766,936	4,727,403,950	439.07	48.53
Philippine Islands	8,552,000	June 30, 1913	Postal savings banks	39,909	1,4[illegible]8,560	37.55	.18

State), suggested by the burial of Bjørnson, portrays the unworthy feelings of a great man's children at the time of his death. Herman Wildenvey, in his comedy, *Lys over land* (*Light across the Country*), pictures real life in parts of Christiania, among other things the questionable business dealings of two free church ministers. Nils Kjær's *Det lykkelige valg* (*The successful Election*) is a representation on the stage of "practical" politics.

Poetry. Two volumes of poetry stand out preëminently: Herman Wildenvey's *Aarets æventyr* (*The Happenings of the Year*) and Alf Ingebrekt's *Vinterlandet* (*The Winter Country*). The latter shows great epic power. It is, however, more Danish than Norwegian.

Fiction. The psychologic fiction with a suggestion of lyric quality, rich in life but not in ideas, which displaced the "problem" writing of the eighties, is giving place to a new literature again turning to social problems. Kristian Elster in *Landeveien* (*The Highway*) voices a hopeless dissatisfaction with the actual present and a longing for a new and better future. Sven Elvestad wrote *De fortaptes hus* (*The House of the Lost Ones*), in which the strongest elements are mood and sentiment. Johan Bojen in *Fangen som sang* (*The Captive Who Sang*) tells the adventures of a youth who uses his ability to act outside the theatre. Ove Ansteinsson in *Det røde vælde* (*The Red Power*), describing a modern strike, apparently gives his sympathy to the employer. Examples of good novels written in *landsmeal* are Olav Hoprekstad's *Ingemaar Kvist* and Kristoffer Updal's *Trolldom i lufta* (*Magic in the Air*).

Miscellaneous. Halvdan Koht edited the letters of Bjørnson under the name of *Gro-tid* (*Time of Growth*). The two volumes contain a good introduction. They cover the period 1857-1870.

SWEDISH. In the literature of to-day three tendencies may be discerned: A gradual decline of poetry in the favor of prose, a revolt against the French influence in novelistic technique, and the development of a new prose according to new artistic ideals.

Drama. Selma Lagerlöf, the well-known novelist and short-story writer, dramatized her story, *Tösen från Stormyrtorpet* (*The Lass from the Stormyr Hut*), a touching tale from Swedish peasant life. Ernst Didring wrote three one-act plays under the name of *Eros.*

Poetry. The Finlander Bertel Gripenberg, perhaps the most popular of poets writing in Swedish, added to his work a collection of lyric poems, *Skuggspel* (*Magic Lantern*). Hjalmar Procopé in *Under Stjärnorna* (*Under the Stars*) gives expression to a melancholy, which is, however, far removed from despair. Jacob Tegengren and Anders Österling each wrote a volume of poems.

Fiction. Alma Wittfogels rykte (*Alma Wittfogel's Reputation*) is the best book yet written by Marika Stjernstedt. It is the story of a woman who sets her own standards and goes through life unfettered by conventions and traditions and at the end wins the love of a man who discovers her innate nobility of nature. In Elin Wägner's *Helga Wisbeck, läkare* (*Helga Wisbeck, M. D.*) we miss the author's customary thesis, and find instead a novel of character. In *Tvedräktens barn* (*Children of Discord*) Sven Lidman continued the chronicle of the Silverståhl family begun last year. K. G. Ossian-Nilsson again gave us a parsonage story *Lilla Benjamin* (*Little Benjamin*). Collections of short stories were: *Ur larmet* (*From the Noise*), by Henning Berger; *Nya noveller* (*New Stories*), by Per Hallström; and *Den talangfulla draken* (*The Talented Dragon*), by Hjalman Söderberg.

Science, Art, and Literature. Henrik Schück and Karl Warburg revised their *Illustrerad svensk litteraturhistoria* (*History of Swedish Literature, Illustrated*). Of great importance for Tegnér criticism is a volume of Tegnér's, *Philosophic and Æsthetic Writings*, edited by Albert Nilsson and Bert Möller. Tor Hedberg's *Ett decennium* (*A Decade, i.e.*, 1897-1907) contains a number of masterly essays on Swedish and foreign authors.

SCHILLER LITERATURE. See GERMAN LITERATURE.

SCHMIDT, ERICH. A German scholar and educator, died April 30, 1913. Born in Jena in 1853, his early life as a teacher was spent in Wurzburg, Strassburg, and Vienna, where he gave instruction in philology and the history of literature. He became director of the Goethe archives at Weimar, and he succeeded Scherer as professor of the German language and literature at the University of Berlin. He wrote several books on Goethe. His *Life of Lessing* is considered the standard biography of that poet.

SCHNIEWIND, FRIEDRICH. An American chemist, died March 13, 1913. Born in Germany in 1861 and educated at Heidelberg University, at the age of twenty-eight he removed to the United States and became interested in the manufacture of coke. He was a pioneer in the coke-oven business, and was the first to introduce such an oven into the United States. At the time of his death he was president and owner of the German-American Coke and Gas Company and its subsidiaries, the United Coke and Gas Company and the Coke and Gas Construction Company.

SCHNITZLER, ARTHUR. See GERMAN LITERATURE.

SCHOOL ADMINISTRATION. See EDUCATION IN THE UNITED STATES, *Public School Administration.*

SCHOOL HYGIENE. See EDUCATION IN THE UNITED STATES.

SCHOOL NURSES. See EDUCATION IN THE UNITED STATES, *School Hygiene. b.*

SCHOOL OF JOURNALISM. See UNIVERSITIES AND COLLEGES.

SCHOOLS. For facts concerning elementary and secondary schools, see EDUCATION; EDUCATION IN GREAT BRITAIN; EDUCATION IN THE UNITED STATES; and for professional and technical schools, see UNIVERSITIES AND COLLEGES and AGRICULTURAL EDUCATION.

SCHOOL SAVINGS BANKS. See SAVINGS BANKS.

SCHRÖDER-STRANZ EXPEDITION. See POLAR EXPLORATION, *Arctic.*

SCHWARZBURG-RUDALSTADT. See GERMANY, *Other States.*

SCIENCES, NATIONAL ACADEMY OF. A society incorporated in 1863 for the purpose of examining and investigating any subject of science or art, and for making reports of such investigations at the call of the United States government, which makes appropriations for the expenses of such examinations and reports. Annual meetings are held in the spring at Washington, and autumn meetings are held in different cities of the United States. The academy celebrated the semi-centennial anniversary of its foundation on April 22, 23, and 24, 1913. It was the most successful meeting with the largest attendance of members in the history of the academy. There was no programme of technical papers, but in its place a series of addresses. The president, Dr. Ira Remson, read at the first session an address on the history of the academy, and Pres. Arthur T. Hadley of Yale, spoke on "The Relation of Science and Higher Education in America." Arthur Schuster, secretary of the Royal Society of London, addressed the society on "International Coöperation in Research." Other addresses were made by Dr. George E. Hale, director of the Mount Wilson Solar Observatory, on the "Earth and Sun as Magnets"; and by Dr. J. C. Kapteyn, director of the astronomical laboratory of the University of Groningin, on "The Structure of the Universe." The Watson medal for astronomical research was presented to Dr. J. C. Kapteyn; the Draper medal for astrophysical research to M. Henri Deslandres; the Agassiz medal for oceanographic research to Dr. Johan Hjört; and the Comstack prize for research in radiant energy to Prof. R. A. Millikan of the University of Chicago. The officers elected for a term of six years were: President, Dr. W. H. Welch of Johns Hopkins University; vice-president, Dr. Charles T. Walcott, secretary of the Smithsonian Institute; and home secretary, Dr. A. L. Day, director of the geophysical laboratory of the Carnegie Institute.

SCOTLAND. See GREAT BRITAIN.

SCOTT, CAPT R. F. See POLAR EXPLORATION, *Antarctic;* and LITERATURE, ENGLISH AND AMERICAN.

SCOTTISH SOCIETY, ROYAL, EXHIBITION OF. See PAINTING AND SCULPTURE.

SEALS. See FISH AND FISHERIES.

SEAPLANE. See NAVAL PROGRESS.

SECONDARY SCHOOLS. See AGRICULTURAL EDUCATION; EDUCATION IN GREAT BRITAIN; and EDUCATION IN THE UNITED STATES.

SEDGWICK, ADAM. An English zoölogist. He was born in Norwich, England, and at the time of his death in 1913 was about 58 years of age. He was educated at Marlborough School and at Trinity College, Cambridge. In the latter institution he came under the influence of Frank Balfour, whose assistant he became. He succeeded Balfour as professor of animal embryology at Cambridge. He succeeded as professor of zoölogy at Cambridge in 1907. In 1909 he resigned this chair and removed to London as professor of zoölogy in the Imperial College of Science.

SEISMOLOGY. See EARTHQUAKES.

SELANGOR. A state of the Federated Malay States (q.v.) on the western shore of the Malay Peninsula. The area in 1909 planted to rubber was 145,222 acres; under cocoanuts, 24,294 acres; rice, 9112; gambier, 39,000; coffee, 10,645; pepper, 1250. Tin is the most important mining product. Export of tin (1911), 5,097,877 Straits Settlements dollars; tin ore, 16,643,259; rubber, 23,852,273; copra, 294,676; gambier, 72,799; gutta, 34,453; hides, 38,518; pepper, 51,278; coffee, 302,592; arecanuts, 19,784, etc.; total exports, 47,433,952 (4,732,136 in 1910). Total imports, 30,196,834 S. S. dollars (6,054,984, rice; 3,031,517, hardware; 1,484,594, opium; 1,185,872, tobacco and cigars; 522,323, spirits; 435,188, beer and stout; 255,385, plain, and 893,689, dyed cotton goods; 941,522, machinery; 506,747, petroleum; 490,672, cattle; 321,150, swine; 101,465, lard; etc.), against 24,315,540 in 1910.

Kuala Lumpur is the capital as well as the capital of the Federated Malay States. Reigning sultan, Suleiman bin Almerhum Raja Musa. British resident (1913), E. G. Broadrick.

SENATORS, DIRECT ELECTION OF. See ELECTORAL REFORM.

SENEGAL. A colony of French West Africa (q.v. for area, population, etc.). The Wolof is the dominant race and their language is the commercial idiom between the Senegal and the Gambia. They are estimated to number more than 407,000, and are in general Mussulmans. Other elements of the population are Serers, fetishists, over 188,000; Toucouleurs, fanatical Mussulmans, over 158,000; Peuhls, pastoral nomad Mohammedans, 78,500; and various fetishistic remnants of tribes of a low order of intelligence and a degraded manner of life, unsuited for civilization and existing mainly by pillage. Industries properly so-called there are none. A primitive agriculture produces millet, peanuts, manioc, corn, cotton, rice, indigo, tropical fruits, etc. Rubber and other forest products are gathered. The pastoral peoples possess great herds, of which they take the utmost care. Horses are plentiful; there are well-defined breeds of cattle; the Moors possess large herds of camels which they send north of the river during the wet season to avoid the long rains. Minerals exist but are worked by the natives in primitive fashion only. The total imports in 1911 were valued at 74,743,558 francs and the exports at 53,382,434 francs; 82,607,568 and 63,679,878 francs in 1910. Principal articles of export with values in 1910 were peanuts, 49,770,741 francs; rubber, 5,060,048; gums, 1,331,601; live animals, 219,511; etc. Vessels entered (1910), 901, of 1,597,555 tons. The Dakar to Saint-Louis railway has a development of 264 kilometers. The projected Thiès-Kayes line is in operation as far as Malem; with a branch, opened to traffic January 1, 1912, from Guinguinéo to Kaolak. Into the interior transportation is by pack animals.

Saint-Louis is the capital, with 22,093 inhabitants: Dakar has 24,914; Rufisque, 12,457. Lieutenant-governer (1913), M. Cor.

SERUM SICKNESS (ANAPHYLAXIS). See DIPHTHERIA.

SERUM THERAPY. The discovery of a new serum for the cure of anthrax was announced by Detré, a French physician. The serum is obtained by immunizing a horse with cultures of the anthrax bacilli, and it is said to be strongly bactericidal and successful in curing this very fatal disease. A number of new sera were also prepared for diagnostic purposes. These were the sera of animals immunized against various bacteria. They were marketed in powder form. For use the powder is dissolved in water to make a solution of a definite strength. This solution is added to a suspension of the bacterium to be tested, and after being incubated for a certain period the mixture is examined. The clumping or agglutination of the bacteria may be determined macroscopically by observing whether they have sunk to the bottom of the container, or the process may be watched under the microscope. Agglutination sera were being extensively used to determine the character of an unknown infection, the body fluids of the patient being tested by various agglutination sera until one was found which reached to the patient's serum, thus identifying the infection. See AUTOSERO-THERAPY.

SERVIA. One of the Balkan states; a constitutional European monarchy, hereditary in the male line of the house of Karageorgevich. Until 1878 an autonomous Turkish dependency. Capital, Belgrade. Servia recovered Üsküb, her ancient capital, from Turkey in November, 1912.

AREA AND POPULATION. By the terms of the Treaty of Bucharest, Servia gained as the result of the wars in the Balkans the eastern part of Novibazar, Kossovo, and central Macedonia. The area (square kilometers) and the population (census of December 31, 1910) by departments of Servia previous to the war are given in the table below, with estimated area and population for the acquired territories:

Depts.	Sq. km.	1910	Depts	S. km.	1913‡
Belgrade *	12	89,876	Bitolj	.....	345,759
Belgrade	2,025	155,815	Ishtib	.....	......
Kraguye'ts	2,295	189,025	Debar	.....	82,476
Krayina	2,909	112,142	Kav'ar	.....	97,763
Krushevats	2,710	167,371	Kum'vo	.....	166,939
Morava	2,900	203,638	Novib'r	.....	133,401
Nish	2,558	198,768	Pleviye	39,000	62,601
Ushitse	3,288	146,763	Pris'na	.....	239,386
Pirot	2,419	112,314	Prizren	.....	227,425
Podrinye	3,351	238,275	Üsküb	.....	153,298
Pozharev's	4,157	259,906	Tetovo	.....	157,249
Rudnik	1,569	85,340			
Smederivo	1,277	143,216			
Chachak	3,798	138,911			
Timok	3,196	149,538			
Toplitsa	2,839	110,213			
Valyevo	2,458	157,648			
Vranya	4,342	252,937			
Total	48,303†	2,911,701	Total general	87,300	......

* City. † 18,650 sq. miles. ‡ Estimated.

Marriages, 1912, 13,289 (30,453 in 1911); births, 114,257 (107,229); deaths, 63,358 (64,415). Population of Belgrade (1910), 89,876; Nish, 24,949; Kraguyevats, 18,386; Lescovats, 14,266; Pozharevats, 13,613; Shabats, 11,541; Pirot, 10,737; Vranya, 10,487. In the new territories are Bitolj (Monastir), 59,856; Üsküb, 47,384; Prilip (Perlepe), 21,783; Prizren, 21,244; Prishtina, 18,174; Velez, 15,624; Novibazar, 13,434; Debar, 10,199; Tetovo, 10,070.

EDUCATION. More than 80 per cent. of the adult population is illiterate. Primary instruction has been made free, and it is nominally compulsory; but actual attendance is very low. The state maintains secondary schools; special schools are few. There is a university at Belgrade. The Greek Orthodox is the national religion, but other creeds are tolerated.

PRODUCTION. Agriculture is practically the only industry. Nearly every peasant occupies and cultivates his own freehold, varying from 10 to 30 acres, and enjoys immunity from dire necessity. Almshouses and pauperism are almost unknown. The country is rugged and broken by stretches of uncultivated heath. About 130,000 acres are devoted to plum orchards; the fruit is preserved in large quantities for export, as well as distilled for spirits. It is reported that, in 1911, 954,571 acres were sown to wheat; 254,593 to barley; 258,789 to oats; 123,218 to rye; 1,442,638 to corn; 11,263 to sugar beets. No complete crop returns are available; wheat is reported at 4,167,000 quintals for 1912; rye, 435,000; barley, 1,003,000; oats, 733,000; corn, 6,739,000. There were reported in the country December 31, 1910: 965,208 cattle; 3,808,815 sheep; 152,617 horses; 836,544 swine; 627,427 goats. Over 135,000 hectares are in worked forest, 167,000 in unworked forest. Sericulture is important.

The output of the mines was valued in 1911 at 15,413,945 dinars: 8,165,731 dinars copper; 3,775,776, coal; 1,433,603, gold; etc. Meat-packing, milling, brewing, distilling, sugar refining, carpet-weaving, etc., are the principal manufacturing industries.

COMMERCE. In the table below is shown the trade for three years, values in dinars:

	1909	1910	1911
Imports.........	75,535,000	84,697,000	115,425,000
Exports.........	92,982,000	98,388,000	116,916,000

The principal classes of the 1911 trade were as follows, values in thousands of dinars: Agricultural, animal, and forest products, 22,769 imports and 103,776,000 exports; metals, 20,304 and 9657; minerals and petroleum, 6936 and 718; drugs, chemicals, and dyes, 7573 and 288; textiles, manufactured and raw, 31,416 and 2143; hides and leather, 4575 and 37; luxuries, 2809 and 66; papers, 2513 and 13; stone and crockery, 1619 and 132; glassware, 1520 imports; machinery and implements, 12,350 and 28; other merchandise, 1041 and 43. The principal countries of origin and destination, values in thousands of dinars, were Austria-Hungary, 47,448 imports and 48,433 exports; Germany, 31,347 and 28,933; Turkey, 3814 and 11,984; Russia, 3391 and 53; France, 5746 and 3841; Italy, 4861 and 4394; United Kingdom, 9524 and 87; United States, 2136 and 3609; Belgium, 2081 and 6142; Rumania, 1539 and 6141; Bulgaria, 697 and 2803; etc.

COMMUNICATIONS. There were in operation, at the end of 1913, 555 kilometers of standard and 414 of narrow gauge railway; in the acquired territories, 387 kilometers standard gauge, 111 local lines, and 105 industrial lines. Under construction, 344 kilometers. Telegraph lines (1912), 4403 kilometers; wires, 8355; stations (state), 211. Urban telephone lines, 811 kilometers; wires, 7924; interurban lines, 2941; wires, 11,201. Post offices, 1556. The navigable rivers are the Danube, the Save, and the Drina. The roads are badly in need of repair.

FINANCE. The unit of value is the dinar (par value, 19.295 cents). Official financial statistics are at present unavailable. Some details of the 1913 budget are reported as follows: 30,613,000 dinars revenue from direct taxes; 31,655,698 from monopolies; 14,500,000 from customs; 16,000,000 from state railways; 9,001,000, excise; 8,402,000, fines; 5,547,485, domains; 4,100,000, posts and telegraphs; 5,852,165, various; 5,093,365, extraordinary. Expenditure for service of the debt, 32,394,550; civil list, 1,440,000; court employes, 45,650; Skupshtina, 663,000; council, 198,380; pensions and subventions, 4,807,366; justice, 3,043,660; worship and instruction, 9,630,384; foreign affairs, 2,929,632; interior, 5,302,193; finance, 13,830,559; war, 30,116,313; public works, 19,615,734; agriculture and commerce, 5,480,829; etc.; extraordinary, 801,000. The debt stood, January 1, 1913, at 654,050,500 dinars.

Army. The successful test which Servia's army had in the Balkan War when, with a population of barely 3,000,000, it was able to put into the field 12 complete divisions of no less than 405,000 men within three months of the declaration of war and to mobilize a force of 260,000 men in three weeks, was proof conclusive of the efficiency of its military system and of the patriotism of its citizens. Recruits are enrolled in the summer of the year previous to their liability for service and, in the case of those desiring to enter the cavalry, opportunity is given them to secure their mounts. Not only men, but carts and animals are registered and those not possessed of animals are required to pay a heavy tax which is used for the purchase of artillery horses from Austria and Russia. For military service the kingdom is divided into five districts, each of which furnishes a complete division of the three bans. These divisions are as follows: First, or Morava division, headquarters at Nish; second, or Drina division, headquarters at Valyevo; third, or Shumadda division, headquarters at Kraguyevatz; and the sixth, or Timok division, with headquarters at Zayechar. Each division is divided into four sub-divisions, each forming a regimental centre, and these again into battalion sub-divisions. Recruits for the cavalry, artillery, engineers, train and other special branches are taken from all over the kingdom, but they are grouped together as far as possible. The active army is composed of five divisions, each of four regiments of infantry of three battalions, one regiment of artillery of nine batteries, and one cavalry regiment of three squadrons. There is a complete organization of the second ban along similar lines and also of the third.

In 1912 the effective budgetry construction of the army was as follows: Officers, 2038; officials, 237; sergeant-majors, 788; sergeants, 1250; corporals, 2311; soldiers, 22,559; graduates of schools for petty officers, 467; graduates of the military academy, 125; musicians, 500; total, 28,000. This, of course, was prior to the Balkan War when the army was increased as indicated above. Late in 1913 the Servian war minister announced that the army was to be raised to a peace establishment of 80,000; barracks were to be provided, the infantry rearmed, the supply of air craft increased, and an increased artillery personnel developed to take over and man the guns which had been captured in the war. Seven officers who had served in the war were to be sent to the French superior war schools.

Government. By the terms of the treaty of Berlin, July 13, 1878, Servia became an independent principality, and was proclaimed a kingdom March 6, 1882. After the abdication of Milan I. Obrenovich, March 6, 1889, the country was administered by a council of regents until April 13, 1893, when Alexander I. Obrenovitch, son of Milan I., attained his majority. He was assassinated May 29, 1903. June 2, 1903, Peter Karageorgevich, grandson of Kara George and son of Alexander Karageorgevich, was elected king under the name Peter I. He married (1883) Princess Zorka of Montenegro. His first son, George, was forced in 1909 to renounce his right of succession, which descended to the second son, Alexander, born 1888.

The legislative body is the Skupshtina, composed of 169 members. The ministry as constituted September 12, 1912, and September 1, 1913, was as follows: N. P. Pashich, premier and minister for foreign affairs; Dr. L. Patchou, finance; S. M. Protich, interior; General Boyanovisch, war; L. Yovanovich, worship and instruction; M. Diuritchich, justice; Dr. V. Yankovich, commerce, etc.; I. P. Ivanovich, public works.

History The chief events in the history of Servia during the year were connected with the conduct and outcome of the Balkan War (see TURKEY AND THE BALKAN PEOPLES). Although the accord which had been reached with great labor between Servia and Bulgaria was rudely broken by a lamentable quarrel over the division of the booty that had been snatched from Turkey, and although Austria-Hungary succeeded in thwarting Servian ambition to secure a port on the Adriatic, nevertheless, as results of the struggle, Servia nearly doubled her area and population and secured valuable friends in Rumania, Greece, and Montenegro. A session of the Skupshtina in April granted a special credit of 90,000,000 francs for military purposes. Among the measures approved in the regular session of the Skupshtina, held from October 8 to November 8, were the budget for 1914, a loan of 250,000,000 francs, a pension bill, the erection of military academies at Üsküb and Monastir, and the prolongation of the *moratorium* in respect of bills of exchange and acceptances until December 30, 1913, and of all other payments of debts until November 12, 1914.

The activities of the ministry as well as of the Skupshtina were directed chiefly toward the solution of problems resulting from the war. M. Pashich, the premier, encountered such vigorous opposition among his Radical colleagues and from M. Marinkovitch, the Conservative leader, on account of his pacific, temporizing policy towards Bulgaria, that on June 22 he presented his resignation to King Peter. M. Pashich was upheld by the king, however, and continued to act as prime minister, but was unable to prevent the rupture with Bulgaria. When war became inevitable, M. Pashich prosecuted it with zeal and ability. The new territories, definitively ceded to Servia by the treaty of Bucharest (August 10), were at once divided into eleven administrative districts, and the government set about, with praiseworthy despatch, restoring order and prosperity in the provinces devastated by war. In dealing with the newly-acquired districts, in which there was a considerable Bulgarian population, statesmanlike leniency was displayed: Bulgarian schoolmasters were left undisturbed, and Bulgarian priests of the Exarchate schism were required simply to transfer their allegiance to the metropolitan at Belgrade. No little difficulty was encountered in dealing with the Albanian population in the western districts, but an efficient and active gendarmerie had established practical security by the close of the year. It was announced in November that large new barracks would be erected at Gostivar, which would thus become an important centre for the preservation of peace, and that a university for New Servia would be founded at Uskub. On December 6 the *Official Gazette* at Belgrade published a royal decree granting a constitution to New Servia based in a general way upon the Servian Constitution of 1903 but providing for a transitional period of ten years, during which the mixed nationalities in the new territories—Turks, Albanians, and Bulgarians—would be deprived of many civil rights and of the right of representation in the Skupshtina. A serious difficulty presented itself in the matter of the railways in the recently-annexed regions: Servia desired to incorporate them into her state-owned system, while Austria-Hungary, whose citizens owned a majority of the stock, strenuously objected; the matter was being negotiated at the end of December. The definitive treaty between Servia and Turkey was signed at Belgrade on December 21. Although diplomatic relations had not as yet been resumed with Bulgaria, a growing cordiality toward Rumania was witnessed. Late in December a mixed commission, appointed to consider the best means of joining the Servian railway system with that of Rumania, recommended that a great bridge be constructed over the Danube at the village of Tziganesch, thirty kilometers above Gruia.

SEVENTH DAY ADVENTISTS. See ADVENTISTS, SEVENTH DAY.

SEVENTH DAY GERMAN BRETHREN. See BRETHREN, CHURCH OF THE.

SEWAGE PURIFICATION presented no marked changes in practice during the year. The usual plan continued to be a reliance on sedimentation to remove the bulk of the suspended matters. Where this is insufficient to prevent nuisance the effluent from the sedimentation tank is passed through some form of filter bed. Of the three types of filters in use—sprinkling, contact, and intermittent sand,—the sprinkling filter is most commonly employed on new installations. If a high degree of clarification is required, the sprinkling-filter effluent is subjected to a brief period of sedimentation, and if high bacterial removal is considered essential resort is had to disinfection by hypochlorite of lime (bleaching powder). Screens are sometimes used in the preliminary process for the removal of suspended matter. At Providence, R. I., the settled sewage is treated with hypochlorite and a disinfectant is used at a number of plants in New Jersey, but the practice is not a common one as yet. Sedimentation tanks are divided into plain, septic, and Imhoff. The septic tank retains the solid matter or sludge for partial reduction in volume by septic action. The Imhoff tank is simply a two-story septic tank, with the settling chamber above and the sludge-digesting chamber below, the two being separated by a sloping bottom to the upper tank, with slots cut in it through which the sludge slides into the digesting chamber. The Imhoff tank was modeled in part after the Travis tank, worked out in England, but little used there. The Imhoff tank is largely used in Germany and during the past few years it was being adopted by a considerable number of American cities as a part of new works. Atlanta, Ga., put its second set of Imhoff tanks and sprinkling filters in use in 1913 and was to have still a third set—making one for each of the topographical drainage districts of the city.

Important studies of local sewage-disposal problems were carried on in a number of cities during the year. The Metropolitan sewerage commission of New York continued work which it began a number of years previously. By the close of the year it had nearly completed a comprehensive plan for bringing the sewage of the whole city to a number of central points and there treating it much or little, as local conditions demanded. The most interesting part of the whole scheme was an artificial "sewage island" well out in the Atlantic Ocean, beyond Coney Island, to which would be taken for a moderate degree of treatment the sewage of the lower east side of Manhattan Island, and also the sewage of Brooklyn. The commission named was a State-created body, with its members appointed by the mayor, and its expenses paid by the city of New York, but it was connected in no other way with the city government. During the year the city government created a sewer plan commission, made up of city officials. It was expected that this commission would also report a plan for sewage disposal. Experiments on sewage treatment were conducted at Cleveland, Ohio, during the year, preparatory to planning sewage-treatment works for that city. Indianapolis established a station for the same purpose and Akron, Ohio, published a report on the operations of a sewage-testing station which it operated in 1912. The result of the Akron studies was the recommendation of Imhoff tanks, sprinkling filters, and small secondary settling basins. The tests showed that these would operate satisfactorily, notwithstanding the industrial wastes which enter the sewers from rubber, salt, and paper works.

SEWERAGE. The construction of sewers for the collection of liquid wastes from houses, stores, and other buildings, and for the removal of those wastes to some point of final disposal consists chiefly in digging trenches and laying pipes or other conduits therein. For these wastes alone comparatively small conduits are required, but when sewage and storm water from the streets are conveyed through one set of conduits much larger capacity is necessary. For the smaller conduits, vitrified clay pipe, commonly known as sewer pipe, is used. For the larger one brick was almost universally employed until concrete and reinforced concrete came into such wide use for all sorts of engineering construction. Besides the collecting and outfall systems it is sometimes necessary to provide pumps for lifting the sewage of flat cities to the level of the water into which the sewage is discharged. Three 100,000,000-gallon submerged centrifugal pumps were proposed for this purpose for the Passaic Valley Sewerage District, in connection with the great trunk sewer which it is building from Paterson to Newark, N. J., beneath Newark Bay and the Bayonne Peninsula and beneath New York Harbor to a submerged outlet near the Statue of Liberty. For sewage disposal and methods of treatment, see SEWAGE PURIFICATION.

SEX DETERMINATION. See ZOÖLOGY.

SEX HYGIENE. See HYGIENE, and EDUCATION IN THE UNITED STATES.

SHAFROTH, JOHN FRANKLIN. An American public official, elected in 1913 United States

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senator (Democratic) from Colorado. He was born in Fayette, Missouri, in 1854, and graduated from the University of Michigan in 1875. He studied law and in 1876 was admitted to the Missouri bar, practicing at Fayette until 1879, when he removed to Denver. He served as city attorney from 1887 to 1891; in 1895 was elected to the 54th Congress; and was reëlected to successive Congresses up to and including the 58th. He refused to retain his seat in the 58th Congress as it had been proved that his election had been obtained by fraud. In 1909 he was elected governor of Colorado and was reëlected in 1911.

SHEEHAN, Patrick Augustine An Irish Roman Catholic priest and author, died October 6, 1913. Born in Mallow, Ireland, in 1852, he was ordained to the Roman Catholic priesthood in 1875; from 1875-77 he served in the English mission at Exeter; was curate in Mallow and Queenstown; and in 1903 received the appointment of canon of Cloyne. He wrote many novels, and several volumes of essays and poems. His novels are racy of the soil, and have their roots in a full knowledge of Irish character and customs. The Roman Catholic point of view is the point of departure for all of them. His published writings include: *Geoffrey Austin, Student; The Triumph of Failure; My New Curate; Lost Angel of a Ruined Paradise; Cithara Mea* (poems); *A Spoiled Priest and Other Stories; Lisheen* (1907); *Parerga* (1908); *The Blindness of the Reverend Dr. Gray* (1909); *The Queen's Fillet* (1911); *Miriam Lucas* (1912).

SHEEP. See Stock-Raising and Meat Production.

SHEPPARD, Morris. An American public official, elected in 1912 to be United States senator from Texas (see Texas). He was born in Wheatville, Morris County, Texás, in 1875, and graduated from the University of Texas in 1895. After graduating from Yale Law School, he practiced in Pittsburgh and Texarkana, Tex., from 1898 until 1902, when he was elected to the 57th Congress to fill the unexpired term of his father, who had died. He was reëlected to the 58th, 59th, 60th, 61st, and 62nd Congresses (1903-13). On the announcement, in 1911, by Senator Bailey that he did not care to continue his services in the Senate for another term, Mr. Sheppard became a candidate and was elected by the legislature in 1913. During his service in the House he gained a reputation as a gifted and fluent orator.

SHERMAN, Lawrence Y. United States senator (Republican) from Illinois. Born in Miami County, Ohio, in 1858, he spent his early years on a farm, and was educated in the common schools and at McKendree College. He studied law and was admitted to the bar. A member of the State general assembly from 1897-1905, he was speaker from 1899-1903, and lieutenant-governor and president of the State Senate from 1905-1909. He was elected to the Senate March 26, 1913. At that time he was president of the State board of administration, having control of all the public charities. His term in the Senate expires March 3, 1915 (see Illinois).

SHIELDS, John Knight. United States senator (Democrat) from Tennessee. He was born at Clinchdale, Grainger County, Tenn., in 1858; was educated privately; and in 1879 was admitted to the bar. In 1893 he was appointed chancellor of the twelfth chancellory division, serving one year. In 1902 he was appointed associate justice of the Supreme Court in the State, in which position he served until 1910, when he was reëlected and made chief justice. This position he held when he was elected to the United States Senate, January 23, 1913. His term of office expires March 3, 1919.

SHIPBUILDING. The annual statistics of shipbuilding in various countries, compiled by *Lloyd's Register* and giving the tonnage of merchant ships exceeding 100 tons launched in all countries, shows that the total output of the world for 1913 was 1750 vessels of 3,332,882 tons, of which 3,188,578 tons were steamers. This represents a total increase in the world's production of 2,651,000 tons, as the wastage, including all vessels lost, broken up, etc., during the year was 628,000 tons. The production was 431,000 tons more than in the year 1912. Of the output of 1913, 641 merchant steamers of 1,919,578 tons were launched in the United Kingdom, an excess over 1912 of 193,639 tons and a total exceeding the former previous record made in 1906 by 104,000 tons. An increased number of large vessels were launched during the year. In 1913 84 vessels over 6000 tons were launched in the United Kingdom, and 21 of these were over 10,000 tons. Only 16, however, were capable of a speed of 16 knots and over, the fastest being the Cunard liner *Aquitania* and two other turbine steamers for the Irish Sea and English Channel service, respectively. These three vessels were designed for a speed of over 20 knots.

The British proportion of the total merchant tonnage of the year 1913 was 58 per cent., which was less than in 1912 and 1911, when the proportion was 60 and 68 per cent., respectively; but the ratio was about the same as in 1907, the last year of great activity in shipbuilding. In 1913, Germany's proportion was 14 per cent., as compared with 13 per cent. in 1912, and 9.7 per cent. in 1911. In the United States the proportion for the year 1913 was 8.3 per cent., as compared with 9.8 per cent. in 1912, and 6.5 per cent. in 1911, and 17 per cent. in 1910. The French total was 5.3 per cent., which was greater than in the three preceding years. Holland showed a smaller proportion, or 3.1 per cent. of the world's total merchant output.

While the total number of warships launched in 1913 throughout the world was 180 vessels of 676,909 tons displacement, this tonnage, which exceeded that of the previous year by 142,000 tons, was the largest, with the exception of 1911. The detailed production by nations will be seen from the accompanying table. It is interesting to note that the German warship production was the highest ever recorded, Germany building 25 vessels of 148,000 tons, or nearly 50,000 more tons than in 1912, and nearly 20,000 more tons than in 1911.

	1911	1912	1913
Austria-Hungary	58,105	88,742	68,258
Belgium	7,563	18,542	30,181
British Colonies......	19,662	34,790	48,339
China	2,189	8,681	1,486
Denmark	19,651	26,263	41,682
France	184,184	169,889	251,986
Germany	887,477	477,742	618,673
Holland	93,670	101,642	107,371
Italy	92,719	40,060	104,166
Japan	81,790	88,731	119,664
Norway	35,535	50,358	51,157
Russia	96,264	15,663	30,864

	1911	1912	1913
Spain	6,598	21,580	25,199
Sweden	9,852	13,968	18,524
United States	287,550	349,493	288,042
Other countries	120	....	670
Total foreign and colonial	1,384,379	1,506,147	1,806,262
Total for the United Kingdom	2,034,630	1,930,251	2,203,529
Total for world	3,419,009	3,436,398	4,009,791

Of the two accompanying tables, both taken from *Lloyd's Register*, Table A shows the tonnage of vessels of 100 tons gross and upwards, exclusive of warships, launched in the various countries of the world during the years 1909-1913; Table B shows the number and tonnage of warships launched in Great Britain and other countries from 1908 to 1913.

TABLE A

Year	United King. tons	Aus.-Hun. tons	Brit. Col. tons	Denmark tons	France tons	Germany tons	Holland tons	Italy tons	Japan tons	Norway tons	United States tons	Other c'tries tons	Totals No.	Totals tons
1909	991,066	25,006	7,461	7,508	42,197	128,696	59,106	31,217	52,319	28,601	209,604	19,276	1063	1,602,057
1910	1,143,169	14,304	26,343	12,154	80,751	159,303	70,945	23,019	30,215	36,931	331,318	29,401	1277	1,957,853
1911	1,803,844	37,836	19,662	18,689	125,472	255,532	93,050	17,401	44,359	35,435	171,569	27,291	1599	2,650,140
1912	1,738,514	38,821	34,790	26,103	110,734	375,317	99,439	25,196	57,755	50,255	284,223	60,622	1719	2,901,769
1913	1,932,153	61,757	48,339	40,932	176,095	465,226	104,296	50,356	64,664	50,637	276,448	61,979	1750	3,332,882

TABLE B

Year	Great Britain No.	Great Britain Tons	Other Countries No.	Other Countries Tons
1908	36	74,186	91	235,503
1909	42	126,230	109	278,245
1910	45	134,645	77	176,209
1911	50	230,786	119	538,083
1912	30	191,737	144	342,892
1913	49	271,376	131	405,533

The following shows the number and displacement of warships of 100 tons and upwards launched for the various navies during the years 1909 to 1913:

TABLE C

Year	British tons	American (United States) tons	Austro-Hung'n tons	French tons	German tons	Italian tons	Japanese tons	Russian tons	Other Flags tons	Total No.	Total tons
1909	98,790	48,639	22,217	95,740	99,116	2,088	375	1,246	36,264	151	404,475
1910	133,525	30,287	14,993	24,063	49,024	19,374	23,100	.....	16,488	122	310,854
1911	221,430	57,526	20,269	53,995	128,340	75,018	37,071	93,260	81,960	169	768,869
1912	163,087	62,673	49,361	55,965	99,810	14,939	56,035	492	32,267	174	534,629
1913	187,566	10,752	9,922	75,401	148,100	52,628	55,490	27,564	109,486	180	676,909

On June 30, 1913, the merchant marine of the United States, including all kinds of documented shipping, comprised 27,070 vessels of 7,886,518 gross tons, an amount in excess of the combined tonnage recorded in *Lloyd's Register* for 1913 under the German flag, 5,082,061 tons, and under the Norwegian flag, 2,457,890 tons and, excepting the British Empire, greatly in excess of the tonnage of any other three nations combined. The total tonnage under the British flag, as recorded by *Lloyd's*, was 20,431,543 tons (steam, gross; sail, net). Unfortunately, the American tonnage on the great seas suffers in comparison as 2,939,786 gross tons are on the American Great Lakes. The geographical distribution of the merchant marine of the United States in 1912 and 1913 is shown by the accompanying table.

COMPARISON OF UNITED STATES MERCHANT MARINE OF 1912 AND 1913

Classification Geographical distribution	1912 No.	1912 Gross tons	1913 No.	1913 Gross tons
Atlantic and Gulf	16,874	3,625,525	16,924	3,743,354
Porto Rico	103	7,941	113	7,774
Pacific	4,254	963,319	4,577	1,028,550
Hawaii	47	21,494	48	20,746
Northern Lakes	3,367	2,949,924	3,447	2,939,786
Western Rivers	1,883	145,980	1,961	146,308
Total	26,528	7,714,183	27,070	7,886,518

The United States Bureau of Navigation reported 1501 sailing, steam, and unrigged vessels of 382.569 gross tons built in the United States and officially numbered during the calendar year ended December 31, 1913, as follows:

	WOOD						STEEL							
	Sail		Steam		Unrigged		Sail		Steam		Unrigged		Total	
	No.	Gross	No.	Gross	No.	Gross	No.	Gross	No.	Gross	No.	Gross	No.	Gross
Atlantic and Gulf	58	12,879	368	15,271	242	67,694	2	953	62	148,796	7	4,065	739	249,658
Porto Rico	6	113	2	27	...	.....	..	...	..	......	..	.....	3	140
Pacific	1	7	272	17,748	133	11,177	..	...	20	17,746	1	368	427	47,046
Hawaii	..	.....	3	93	...	.....	..	...	..	......	..	.....	3	93
Great Lakes	..	.....	102	2,681	28	4,715	2	4,881	27	62,748	7	5,054	166	80,079
Western Rivers	..	.....	123	3,170	23	194	..	...	5	37	7	2,152	158	5,553
Total	65	12,999	870	38,990	426	83,780	4	5,834	114	229,327	22	11,639	1,501	382,569

GREAT BRITAIN. In ten years the net increase to the tonnage of the merchant marine of the United Kingdom was 3,759,470 tons, but in that time 1,092.164 tons of sailing ships had been removed and the steam tonnage in the period increased by nearly 5,000,000 tons. In other words, more than one-half of the merchant marine of the United Kingdom, or 11.185.976 tons of new steamers alone had been built within the ten years ending with 1913, as on December 31 the total number of vessels on the register of shipping was 20,968, with an aggregate tonnage of 19,617,324, or 76 vessels and 438,147 tons more than at the end of 1912. In 1913 the British ships lost, broken up, etc., amounted to 157, aggregating 234,685 tons, while there were sold to foreign nations 375 vessels of 714,778 tons, and to the colonies there were transferred 29 vessels of 43,268 tons.

The following table (from *Engineering*, London) shows the notably large merchant steamers launched during the year in British yards:

Name	Tons	I.H.P.	Builders
Cunard liner *Aquitania*	47,000	60,000†	John Brown & Co., Ltd.
Pacific liner *Andes*.	15,620	12,150*	Harland and Wolff, Ltd., Belfast
—— *Orduña*	15,600	9,150*	do do
Royal Mail liner *Alcantara*	15,600	12,150*	do Govan
Allan liner *Alsatian*	18,000	20,000†	W. Beardmore & Co., Ltd.
" " *Calgarian*	18,000	20,000†	Fairfield Co., Ltd.
Holt liner *Ulysses*..	14,499	8,000	Workman, Clark and Co., Ltd., Belfast.
Royal Holland Lloyd liner *Gelria*......	14,053	.....	A. Stephen & Sons, Ltd.
Royal Holland Lloyd liner *Tubantia*....	14,053	.....	do do
Cunard liner *Andania*	13,404	8,000	Scotts' Co., Limited, Greenock
Cunard liner *Alaunia*	13,404	8,000	do do
Union-Castle liner *Llandovery Castle*	11,800	7,500	Barclay, Curle and Co., Ltd.
Union-Castle liner *Llanstephan Castle*	11,800	7,500	Fairfield Co., Ltd.
P.& O. liner *Berrima*	11,136	9,000	Caird and Co., Ltd.
" *Borda*..	11,136	9,000	do
Norwegian Atlantic liner *Bergensfjord*	10,600	8,500	Cammell Laird and Co., Ltd.
Anglo-Mexican oil-carriers:			
San Hilario.....	10,157	4,100	Palmer's Co., Ltd.
San Jeronimo...	10,150	4,100	Wm. Doxford and Sons, Ltd.
San Gregorio...	10,100	4,600	Swan, Hunter and Wigham Richardson, Ltd.
San Fraterno...	10,100	4,700	do do
San Lorenzo....	10,100	4,700	do do
San Isidoro.....	10,074	4,700	Sir W. G. Armstrong, Whitworth & Co., Ltd.

* Combination machinery. † All turbines.

The following table from *Engineering*, London, gives the aggregates of production in the United Kingdom in the year 1913 as compared with 1912:

	1913 tons	1912 tons
Power-driven tonnage*...	2,205,400	1,924,320
Sailing tonnage...........	31,600	129,680
Totals	2,237,000	2,054,000
His majesty's dockyards..	74,960	54,230
Grand totals.............	2,311,960	2,108,230
Foreign-owned tonnage...	507,000	471,600
Per cent. of total........	22	22.4
Total merchant tonnage†.	2,042,760	1,911,535
Per cent. of power-driven merchant tonnage to total merchant tonnage	99.35	93.2
Horse power of engines..	2,679,000	2,271,775
Per cent. of all naval tonnage to merchant tonnage	13.2	10.3

* Includes warships built in private yards.
† Excludes British and foreign warships.

The above table includes vessels smaller than the 100-ton limit observed by *Lloyd's Register* and floating dry docks.

Germany. Excluding Great Britain Germany had the largest output of any country, and in fact a record production for that nation, the number of vessels of over 100 tons, including merchant and warships, being 201, while the tonnage was 618,673 tons. In this there were included 39 warships, of 153,447 tons, five torpedo-boat destroyers for the Austro-Hungarian navy, in addition to German ships. The merchant tonnage was 465,226 tons, exclusive of the river craft. There were 36 steamers of 5000 tons and under 10,000 tons; while over the latter figure there were five, the largest being the Hamburg-American liner *Vaterland*, of about 56,000 tons, launched at Hamburg, and the biggest vessel afloat at the end of 1913. There was also included the Norddeutscher Lloyd liner *Columbus*, of 35,000 tons, launched at Danzig, and the turbine steamer *Admiral von Tirpitz*, of 21,600 tons, launched at Stettin. Four vessels, totaling 26,000 tons, were fitted with internal combustion engines, the largest being the oil-carrying steamer *Wilhelm A. Riedemann*, of 9800 tons. In addition there were a number of small vessels with oil engines. At the end of the year there remained in course of construction in Germany a turbine steamer, of about 56,000 tons, a sister-ship to the *Vaterland;* three of between 18,000 and 20,000 tons, to be fitted with a combination of reciprocating and turbine engines; one of 15,200 tons; and 23 other vessels of between 5000 and 10,000 tons.

France. The total output for France was the largest for eleven years, and included 75,891 tons of warships, counting one of 490 tons for Japan. The merchant total, 176,095 tons, showed an increase of over 65,000 tons, and included two steamers of close upon 15,000 tons, the *Gallia* and the *Lutetia*, launched respectively at La Seyne and St. Nazaire. There were two other vessels between 12,000 and 13,000 tons, and twelve between 5000 tons and 8600 tons. At the end of the year there were under construction merchant ships aggregating 229,000 tons, including eight vessels of from 5000 to 9000 tons, five between 12,000 and 13,000 tons, one of which will be fitted with combination machinery, as will also one of 15,000 tons, while yet another vessel of 30,000 tons will be driven entirely by turbines.

Netherlands The Dutch total was the largest ever recorded for that country in *Lloyd's* returns, as, in addition to 3075 tons of Dutch warships, there were built 104,296 tons of merchant ships, exclusive of river craft. Of the latter, including steamboats, barges, and other vessels, 126,000 tons were launched, so that the total merchant output of Holland seems to have been about 230,000 tons—a very satisfactory aggregate. The largest vessels launched were three of about 9000 tons each. Internal-combustion engines were fitted to three ships of a combined tonnage of 10,800 tons, as well as to a number of small craft. There are six vessels building of between 7000 and 11,000 tons.

JAPAN. The total for Japan, in addition to the two large "capital" ships for the navy, was 64,664 tons of merchantmen, and included two vessels of about 10,500 tons with combination machinery, and one of 9534 tons. The principal work now in hand is three vessels, of 12,000 tons each.

AUSTRIA-HUNGARY also had a record year; the warship work totaled seven vessels, of 6501 tons, including one vessel of 204 tons for Denmark, while the merchant work totaled 61,757 tons, and exceeded the previous record total of 1912 by 23,000 tons. The merchant ships launched were almost entirely vessels of between 5000 tons and 8000 tons, and at the end of the year there were six such ships in progress, and one of nearly 15,000 tons.

NORWAY showed an output about the same as 1912 and composed almost entirely of small vessels, the largest being only of 1900 tons, and the warship work comprised only one vessel, of 520 tons.

ITALY, in her 53,810 tons of warships, included three small vessels, of 1182 tons, for Brazil.

DENMARK had a record, and the interesting point is that two of the largest and two smaller vessels are fitted with Diesel engines.

BRITISH COLONIES also enoyed a record year, and the output of 48,339 'tons included two large vessels built in the North American lakes, one of 6900 tons and the other of 7862 tons. This last, which was the largest vessel ever built in Canada, was lost during the violent storm which struck the Great Lakes in November, 1913.

MARINE ENGINEERING. In 1913 the *Vaterland*, the sister ship of the *Imperator*, 940 feet in length, was launched for the Hamburg-American line and another ship of similar dimensions was laid down. Work was proceeding on the *Aquitania* so that it would be completed the following year and the *Imperator* was in active service. Aside from questions of mere size the leading topic of discussion during the year was the application of the Diesel engines to marine propulsion and the use of various methods for transforming, or transmitting, power. The *Hagen*, driven by Diesel engines of 2300 horse power across the Atlantic to the port of New York, made a successful voyage, and the *Wotan*, a tank steamer, 404 feet in length, capable of carrying 7680 tons of oil, also made this voyage driven by a Carels-Diesel engine of 2400 horse power. This vessel differed in that a single propeller and single engine was used. This was stated to be the largest Diesel marine engine yet built, and the tests of the vessel and its motor seemed apparently successful. Perhaps the greatest mechanical novelty of the year was the freight steamer *Tynemount* of 2400 tons capacity, which had for its motive power two six-cylinder Diesel engines directly connected to three phase generators from which electric current was taken for an induction motor mounted directly on the propeller shaft. The *Tynemount* was the first large commercial vessel designed to carry a large electric reduction drive and was designed for service on the Great Lakes. In the United States navy one collier of 19,300 tons displacement was fitted with the Westinghouse mechanical gear, while a sister ship was fitted with an electrical reduction gear with motors on the propeller shafts and a generator delivering current to them. In Germany a Foettinger gear was thoroughly tested at loads of from 5000 to 10,000 horse power and was being installed on large German steamships.

During the year the Alabama and New Orleans Transportation Company had under construction a fleet of fifteen barges equipped with twin-screw propellers driven by producer gas engines and designed to operate between the coal fields of Alabama and New Orleans, La. These barges were 240 feet in length and 32 feet in width, with a possible gross tonnage of 1300 tons. The shape followed was that of the barges used in the canals of Amsterdam, Holland. The hull, with machinery, weighs about 220 tons, drawing when empty two inches forward and two feet eight inches aft. Each barge has twin propellers, each driven by a 75-horsepower engine located five feet from the centre and three rudders are employed for the steering, the middle one being balanced. It is estimated that 1000 tons of coal can be moved at the rate of 200 miles per day at a total fuel cost of two tons of coke, and the crew of such a barge consists of two pilots, two engineers, two deck hands, and a cook.

WORLD'S SHIPPING IN 1913. In the accompanying table are given the steam and sailing vessels of over 100 tons, number and gross tonnage of the several countries of the world, as recorded in *Lloyd's Register* of 1912-1913.

Flag	Steam			Sail		Total	
	No.	Net tons	Gross tons	No.	Net tons	No.	Tonnage
British:							
United Kingdom	8,514	11,109,560	18,273,944	700	422,293	9,214	18,696,237
Colonies	1,495	915,950	1,575,223	578	160,083	2,073	1,735,306
	10,009	12,025,510	19,849,167	1,278	582,376	11,287	20,431,543
American (United States):							
Sea	1,209	1,280,958	1,971,903	1,487	1,026,554	2,696	2,998,457
Northern lakes	593	1,724,566	2,285,836	34	96,854	627	2,382,690
Philippine Islands	69	27,080	44,555	8	1,934	77	46,489
	1,871	3,032,604	4,302,294	1,529	1,125,342	3,400	5,427,636
Argentinian	236	107,172	180,576	72	34,259	308	214,835
Austro-Hungarian	419	629,444	1,010,347	8	1,067	427	1,011,414
Belgian	164	186,581	296,196	8	8,190	172	304,386
Brazilian	402	188,645	313,416	57	16,221	459	329,637
Chilean	95	68,834	108,491	36	31,301	131	139,792
Chinese	66	55,375	86,690	...	......	66	86,690
Cuban	55	37,902	60,895	4	641	59	61,536

Flag	Steam			Sail		Total	
	No.	Net tons	Gross tons	No.	Net tons	No.	Tonnage
Danish	552	415,880	711,094	259	50,960	811	762,054
Dutch	662	794,840	1,286,742	97	23,107	759	1,309,849
French	987	1,029,113	1,793,310	565	407,854	1,552	2,201,164
German	2,019	2,877,887	4,743,046	302	339,015	2,321	5,082,061
Greek	365	443,771	705,897	77	16,885	442	722,782
Haitian	5	2,017	3,387	...	......	5	3,387
Italian	591	773,848	1,274,127	523	247,815	1,114	1,521,942
Japanese	1,037	956,702	1,500,014	...	......	1,037	1,500,014
Mexican	43	22,838	37,920	9	2,129	52	40,049
Norwegian	1,597	1,122,577	1,870,793	594	587,097	2,191	2,457,890
Peruvian	20	13,352	25,814	40	19,700	60	45,514
Portuguese	105	55,903	92,636	103	27,943	208	120,579
Rumanian	32	25,011	45,123	1	285	33	45,408
Russian	716	463,022	790,075	500	184,103	1,216	974,178
Siamese	12	7,955	12,936	...	......	12	12,936
Spanish	547	506,073	826,261	60	14,734	607	840,995
Swedish	1,043	551,964	943,926	393	103,344	1,436	1,047,270
Turkish	135	65,402	111,848	137	45,450	272	157,298
Uruguayan	50	38,360	62,215	15	13,316	65	75,531
Venezuelan	8	2,420	4,232	5	679	13	4,911
Other Countries: Bulgaria, Colombia, Costa Rica, Ecuador, Egypt, Honduras, Liberia, Montenegro, Nicaragua, Oman, Panama, Persia, Salvador, Samos, Sarawak, Tunis, Zanzibar, etc.	54	16,027	29,709	22	7,123	76	36,832
Total	23,897	26,517,029	43,079,177	6,694	3,890,936	30,591	46,970,113

SHIPPING. See section so entitled under various countries.

SHIPWRECKS. See SAFETY AT SEA.

SHOCK. See ANÆSTHESIA.

SHOES. See BOOTS AND SHOES.

SHOOTING. The United States was the scene of the international rifle shooting matches in 1913 for the first time in the history of the sport. The contests were held at Camp Perry, Ohio, Congress appropriating $25,000 and the State of Ohio $15,000 for prizes and expenses. The events and results follow: Palma Trophy match won by the United States with a score of 1714; Argentina second with 1684; Canada third with 1675; Sweden fourth with 1484; Peru fifth with 1465. International Team match with free rifle—won by Switzerland with a score of 4959; France second with 4767; United States third with 4578; Sweden fourth with 4577; Argentina fifth with 4061; Peru sixth with 3893; Canada seventh with 3760. Pan American Team match with army rifle won by Argentina with a score of 4600; United States second with 4573; Peru third with 4176. International Team match with pistol won by United States with a score of 2325; France second with 2234; Sweden third with 2228; Switzerland fourth with 2097; Peru fifth with 1182. Pan-American Team match with pistol won by United States with a score of 2315; Argentina second with 2005; Peru third with 1605. Individual Championship of the World with army rifle won by Erikson, Sweden. Individual Championship of the World with free rifle won by Staheli, Switzerland. Individual Pistol Shooting Championship of the World won by Carlberg, Sweden. Individual Pan-American Championship with rifle won by Cavatorta, Argentina. Individual Pan-American Championship with revolver won by Hanford, United States.

In the National Team matches the United States Cavalry Team (2675) won in Class A, Alabama (2547) in Class B, and Utah (2493) in Class C. Edward W. Sweetney of the 16th Pennsylvania Infantry, won the National Individual match, and J. H. Snook, of Columbus, Ohio, the individual revolver match.

The winners of the principal rifle matches held under the auspices of the National Rifle Association were: Individual Military Championship, Captain W. H. Clopton, Jr., United States Cavalry, score 266; Wimbledon Cup (1000 yards, 20 shots), Captain T. E. Vereer, 14th United States Infantry, score 99; Leech Cup (800, 900, and 1000 yards, 7 shots), G. W. Chesley, Ct., score 105; Marine Corps match (600 and 1000 yards, 15 shots), J. W. Hessian, Ct., score 195; Regimental Team match, Fifth Infantry, Massachusetts Volunteer Militia, score 832; Company Team match, Company A, First West Virginia Infantry, score 380; Revolver Team match, First Squadron Cavalry, Colorado National Guard, score 1007.

The intercollegiate indoor championship was won by the University of West Virginia, and the outdoor by the Massachusetts Agricultural College.

Considerable interest was shown in trapshooting in 1913. The Interstate Association's first Southwestern Handicap Tournament held at San Antonio, Texas, was won by R. B. Barnes of Bay City, Texas, with a score of 96 out of 100. M. S. Hootman of Hicksville, Ohio, won the Grand American Handicap held at Dayton, Ohio, his score being 97 out of 100. The national amateur championship went to Barton Lewis of Auburn, Ill., with 195 out of 200, while C. A. Young of Springfield, Ohio, was the winner of the national professional championship, scoring 197 out of 200. The amateur championship at double targets was won by George L. Lyon of Durham, N. C., who made 94 out of 100, and the professional championship by J. R. Graham of Inglesiae, Ill., who scored 88 out of 100. Ralph L. Spotts won the United States indoor championship with a perfect score of 100, and Charles H. Newcomb the United States outdoor championship with 179 out of 200. The intercollegiate spring championship was won by Princeton (407), Yale (312) was second, and Dartmouth (294) third.

SHOPS ACT. See GREAT BRITAIN, *Work of Parliament.*

SHORT BALLOT. See ELECTORAL REFORM.

SIAM. An independent kingdom in the southeast of Asia; a buffer state between British Burma and French Indo-China. Bangkok is the capital.

Area, Population, Etc. The total area is estimated at 600,000 square kilometers, or 198,900 square miles. Population (1910-11), 8,149,487. Persons in holy orders, 142,636. Births (1910-11), 162,491; deaths, 84,495. Immigration of Chinese coolies in 1912, 68,361, and emigration, 45,986; in 1911, 71,258 and 52,562; in 1910, 75,408 and 63,007. Siamese, Chinese, Malays, Cambodians, Mohns, Karens, Annamites, etc., make up the population. Foreign residents, about 2000. Bangkok has 628,675 inhabitants, of whom 197,918 Chinese.

Buddhism is the state religion, and the priests are in large measure in charge of educational matters. A new plan of education has been drawn up by the ministry of public instruction and government-aided secular schools are being introduced. There are several missions.

Production. Serfdom until recent years was the lot of a large part of the population, enslavement for debt being abolished only during the reign of Chulalongkorn. Partly for this reason agriculture is in a backward condition. Rice is the leading crop and the introduction of irrigation has greatly extended the available area. There are 26 rice mills (2 British, 2 German, 22 Chinese) in Bangkok. Next in importance after rice is the teak industry, carried on in the great northern forests mainly by British enterprise. Cattle and hides are exported.

Tin and wolfram are mined on a commercial scale. Gems have ceased to be an important product since the cession to the French of the Pailin district in 1907.

Commerce and Communications. A large proportion of the oversea trade is with Great Britain; much of the trade passes through Singapore and Hongkong, though German and Norwegian shipping exceed British. The table below shows countries of origin and destination with the value of their trade for 1910-11 and 1912-13, in thousands of ticals (par value of a tical, 37.085 cents):

	Imports		Exports	
	1910-11	1912-13	1910-11	1912-13
United Kingdom	11,479	20,622	7,479	3,013
China	6,334	15,286	172	212
British India	7,092	8,222	3,163	2,008
Germany	3,474	5,668	5,982	4,194
Singapore	13,118	5,326	41,199	36,870
Dutch Indies	2,497	5,957	843	475
Hongkong	15,036	1,445	38,178	25,343
Switzerland	734	561	30	13
Other	8,441	13,136	11,864	9,843
Total	68,205	76,225	108,910	81,971

Total imports in 1909-10, 69,811,711 ticals, exports, 102,570,434; in 1911-12, 73,139,000 and 84,634,000. The export of rice in 1912-13 was valued at 65,320,000 ticals; 1911-12, 65,841,000; 1910-11, 91,060,879; 1909-10, 85,078,585. Teak export 1912-13, 5,600,000 ticals; 1911-12, 6,113,000; 1910-11, 7,624,092; 1909-10, 6,975,057. Vessels entered in the 1912-13 trade, 664 steamers, of 506,172 tons. Merchant marine (1913), 33 steamers, of 8621 tons, and 45 sail, of 3612.

State railways (1912), 1024 kilometers, of which 213 kms. local lines; private railways, 106 kms. Bangkok has well-equipped electric street railway and lighting systems. Telegraph lines (1912), 9457 kms.; wires, 10,628; stations, 142; receipts, 1,678,442 francs; expenditure, 1,440,968. Urban telephone wires 6716, interurban 1122; receipts, 202,426 fr.; expenditure 161,926. Post offices 223. Roads are few.

Finance. The budget for 1913-14 estimates to revenue at 65,093,654 ticals (62,321,000 in 1911-12). Ordinary expenditure, 64,599,423 (62,235,539 in 1911-12); for railway construction, 12,850,500 (9,660,670); for irrigation, 1,569,624 (2,014,399); making total ordinary (with various), 15,228,059 (11,675,069)—total ordinary and extraordinary, 79,827,482 (73,910,608). The public debt stood (1913) at £5,712,320; paper currency, March 31, 1913, 26,051,070 ticals.

Army. Military service is obligatory for 17 years under the provisions of the law of 1904, two years being spent in the regular army, five years in the first reserve, and 10 in the second reserve. There are both cadet and war schools. The Siamese army is organized in three army corps and one independent division. Each corps consists of three divisions, making 10 divisions in all. The infantry is armed with a Mauser rifle manufactured in Japan, and the other arms of the service with carbines of the same type. The army of Siam in 1913 was in course of formation and development. It comprised about 12,000 to 15,000 men in time of peace, capable of being increased to an effective of 30,000 in case of war.

Navy. The fleet includes a protected cruiser (3000 tons) and some 20 small craft, besides a torpedo-boat destroyer and 3 torpedo boats. In November, 1913, a new protected cruiser was reported to have been ordered.

Government. The sovereign is absolute monarch, and though the succession is nominally hereditary, he frequently appoints his successor. He has a council of ministers, chiefly chosen from among his relatives; and a legislative body of 39 members is similarly composed. A commissioner appointed by the ruler administers each of the 16 provinces; certain tributory territories are under the control of their own chiefs. The reigning king is (Somdetch Phra Paramindu) Maha Vajiravudh, born January 1, 1881, proclaimed successor and crown prince 1895, succeeded October 23, 1910.

SIERRA LEONE. A British colony and protectorate on the west coast of Africa. Total area, 32,110 square miles; total estimated population, 1,327,560. Population of the Sierra Leone Peninsula (1911), 75,318. Freetown (34,090 inhabitants) is the capital. The country is unhealthy and the inhabitants are averse to agriculture and other industries. Wild products constitute the bulk of the exports—kola nuts, palm kernels, palm oil, rubber, copal, and ginger. The imports were valued in 1911 at £1,274,031 (£1,162,470 in 1910, £978,807 in 1909), and the exports at £1,307,038 (£1,249,367 and £981,466). The revenue amounted (1911) to £457,759 (£424,215 in 1910), and the expenditure to £432,448 (£361,222). Shipping entered and cleared, 2,487,577. The Freetown-Pendembu is a government railway (227½ miles), with a tramway connection to Baiima (7 miles); another tramway connects Boia station with Yonni (21 miles). The gauge for both railway and tramway is the same (2 feet 6 inches), and the same rolling stock is used on both. There are short local lines. Telegraph lines, 298 miles. Governor (1913), Sir E. M. Merewether.

SILK. The silk industry during 1913 was marked by extraordinary conditions both in Europe and the United States. The Balkan War, which involved a certain portion of the silk producing territory, had its effect further in the general feeling of unrest which pervaded all the markets of Europe. In the United States the tariff revision was in progress, with the inevitable uncertainties attaching to this process, and, at the same time, for twenty-two weeks, from February until the end of July, a great strike was in progress at Paterson, which closed every silk mill in that city and affected establishments in other regions dependent for their dyed silk upon the Paterson dye houses. There were involved in this strike some 340 manufacturing plants and dyeing establishments, employing approximately 25,000 people, and representing a monthly output of $4,000,000. As a result some $5,000,000 in wages was lost to the operatives, while the loss of production to the manufacturers was conservatively estimated at $20,000,000.

The year 1912 had seen a large consumption of raw silk, and the visible stocks of the world on January 1 were less than at the same date in 1912, while the consumption continued, and the first few months in the year were marked by increased activity. This, however, so far as America was concerned began to decrease, but European manufacturers were acquiring considerable amounts of the raw material. The silk crop of 1913 was below that of the crop of 1912, which was the largest on record, and the shortage was due to diminished supplies from Italy and France, and, naturally, from the Balkan states and European Turkey, although Hungary maintained its record of the previous year, and Syria and Brutia were favored by good weather conditions and did better than in the previous year. The Caucasus showed a deficit of 25 per cent., Persia and Turkestan maintained about the same position, and, while China indicated an export slightly below that of the previous year, the first three crops of Canton were thought to exceed those of 1912. Exclusive of Tussah silks, the production of the world, as estimated by the *American Silk Journal*, for 1913 in comparison with the previous two years, is given as follows in kilograms of 2.2 pounds each:

	1913	1912	1911
Europe	4,150,000	4,980,000	4,330,000
Levant	2,400,000	2,300,000	2,950,000
Japan	11,100,000	10,820,000	9,320,000
China	4,400,000	4,865,000	4,300,000
Canton	2,400,000	2,175,000	2,030,000
India	150,000	180,000	220,000
	24,600,000	25,320,000	23,150,000

During the year a bulletin from the bureau of the census on the silk industry in the United States for 1909 was published. The following are the more important items from this document.

The total number of establishments in the silk industry in the United States in 1909 was 852; the persons engaged in the industry were 105,238, of whom 99,037 were wage earners; the capital invested was $152,158,002; the wages paid out amounted to $38,570,085; the cost of materials was $107,766,916; and the value of products was $196,911,667.

The total value of products for the industry increased $89,655,409, or 83.6 per cent., between 1899 and 1909. The total production of silk goods of broad weave (broad silks, velvets, plushes, tapestries, and upholstery) in 1909 was 198,787,027 running yards, valued at $115,136,724, as compared with 97,940,935 yards, valued at $58,122,622, in 1899, the increase in output being 103 per cent., and that in value 98.1 per cent.

The silk industry was concerned in numerous "pure fabric" bills introduced in Congress and in the various State legislatures. One of these bills provided "that the term 'pure silk' as used in this act, should be held to mean either a reeled or spun silk from the cocoon of the silk worm, and that the compound part of silk thereof does not contain more than its original gum weight." This brought up the question whether or not the silk, after being boiled, might be weighted to bring it up to its original weight in the gum, as well as other interesting trade customs. Other bills provided for the labeling and tacking of all fabrics and articles of clothing intended for sale, and the placing of the name of the manufacturer upon clothing or products involving the assemblage of parts of textiles. Up to the end of the year none had been passed. See also CHEMISTRY, INDUSTRIAL.

SILK, ARTIFICIAL. See CHEMISTRY, INDUSTRIAL.

SILK, WORLD'S PRODUCTION OF. See AGRICULTURE.

SILVER. The silver production of 1913, according to the estimates of the United States Geological Survey, was the greatest in the history of silver mining. It had an increase of nearly $4,000,000 over the output of 1912. The value of the output, however, has been surpassed, although not since 1893. The notable increase in the production may be attributed chiefly to the record output and increase of over 1,500,000 ounces from the silver-lead ores in Idaho, and increases from the silver-lead and other mines of Colorado, Nevada, Montana, Oregon, Arizona, and California. The chief decrease in the production of 1913 was that of nearly 1,000,000 fine ounces in Utah. (See also METALLURGY.) The following table, taken from the *Engineering and Mining Journal*, shows the production of silver in the several States and in the United States in 1912-13, as reported by the director of the mint and the United States Geological Survey:

SILVER PRODUCTION OF THE UNITED STATES

(In fine ounces)

	1912	1913	Changes	
Alabama	200	84	D.	116
Alaska	539,700	379,575	D.	160,125
Arizona	3,445,500	3,390,846	D.	54,654
California	1,384,800	1,527,026	I.	142,226
Colorado	7,933,100	9,159,367	I.	1,226,267
Georgia	200	84	D.	116
Idaho	7,862,900	9,573,328	I.	1,720,428
Illinois	1,800	3,659	I.	1,859
Maryland	700	....	D.	700
Michigan	543,500	429,014	D.	114,486
Missouri	30,000	33,763	I.	3,763
Montana	12,524,000	13,035,841	I.	511,841
Nevada	13,851,400	15,092,190	I.	1,241,790
New Mexico....	1,460,800	1,525,133	I.	64,333
North Carolina.	2,300	2,268	D.	32
Oregon	54,000	158,594	I.	104,594
South Carolina.	....	13	I.	13
South Dakota...	205,800	168,231	D.	37,569

	1912	1913	Changes
Tennessee	112,000	124,009	I. 12,009
Texas	379,800	428,490	I. 48,690
Utah	13,076,700	12,269,088	D. 807,612
Virginia	700	23,706	I. 23,006
Washington	350,800	263,090	D. 87,710
Wyoming	300	3,729	I. 3,429
Contin'l U. S.	63,761,000	67,591,128	I. 3,830,128
Porto Rico......	....	9	I. 9
Philippines	5,800	9,974	I. 4,174
Total	63,766,800	67,601,111	I. 3,834,311

The average commercial price of silver, at New York, in 1912, was 60.835 cents per fine ounce. In 1913 it was 59.79 cents.

The imports of silver into the United States for the calendar year 1912, amounted to 48,401,068 fine ounces, and the exports to 71,961,755 fine ounces. The bureau of the mint estimated the world's production of silver in 1912 at 224,000,000 fine ounces, in 1913 at 212,000,000. The New York equivalent of the average price of silver in London for the year was 60.45 cents per ounce. Purchases of silver for coinage by the United States amounted to 2,288,000 fine ounces. The world's production for 1912 is given in the accompanying table.

WORLD'S PRODUCTION OF SILVER, CALENDAR YEAR 1912

Countries	Ounces (fine)
North America:	
United States	63,766,800
Canada	31,625,451
Mexico	74,640,300
Africa:	
Transvaal	984,672
West Coast	....
French Colonies	73,286
Rhodesia	158,572
Australasia	14,737,944
Europe:	
Austria-Hungary	1,840,297
France	429,831
Germany	4,984,677
Great Britain	113,769
Greece	803,750
Italy	447,761
Norway	247,988
Portugal	205,822
Russia	200,094
Servia	24,132
Spain	5,152,626
Sweden	32,202
Turkey	1,509,133
South America:	
Argentina	81,996
Bolivia and Chile	4,049,856
Brazil	40,610
Colombia	587,683
Ecuador	22,642
Peru	8,351,563
Uruguay	....
Venezuela	122,303
Guiana (British)	724,235
Guiana (Dutch)	....
Guiana (French)	....
Central America	2,845,954
Asia:	
British India	93,649
China	....
East Indies (British)	....
East Indies (Dutch)	465,980
Indo-China	....
Japan	4,932,852
Korea	12,224
Siam	....
Total	224,310,654

SINAI, ARCHÆOLOGY OF. See ARCHÆOLOGY.

SINGAPORE. See STRAITS SETTLEMENTS.

SIX-HUNDRED-AND-SIX. See NEOSALVARSAN, and SALVARSAN.

SKATING. The international outdoor championships were held at Saranac Lake, in February. R. M. McLean, of Chicago, and R. L. Wheeler, of Montreal, for the second year in succession made practically a clean sweep of the races. McLean won the half-mile, mile and two-mile events, and Wheeler the 440-yards and three-mile events. R. T. Logan won the 220-yard dash. In the international indoor championships, held at Cleveland, McLean won the ¼-mile, ½-mile, ¾-mile, and mile, while Wheeler won the ⅙-mile and ⅛-mile. McLean made a new American amateur record of 1 minute 16⅕ seconds for the half-mile during the year, and abroad O. Mathiesen of Norway established a new world's amateur record of 17 minutes 22⅘ seconds for 10,000 meters. The winners in the Canadian championship were: 220-yards, W. H. Jackson; 880-yards, R. M. McLean; 440 yards, R. T. Logan; mile, R. M. McLean; 2 miles, R. L. Wheeler.

SKEMMATITE. See MINERALOGY.

SKY-SCRAPERS. See ARCHITECTURE, and TALL BUILDINGS.

SLEEPING-SICKNESS. Some interesting discoveries were announced by the commission, headed by Surg.-Gen. Sir David Bruce, which had been sent to Central Africa to investigate this disease. The commission found that the sleeping-sickness of this region differs from that of Uganda, and is more rapid in its course and more fatal, no cases of recovery having been known. It was established that the disease is carried by *Glossina morsitans*, a fly which is distributed over the whole continent, and not confined, like *Glossina palpalis*, which has hitherto been regarded as the sole carrier of the disease, to limited areas. Bruce's work covered a district of Nyassaland, on the eastern shore of the lake, extending 50 miles north and south and 25 miles east and west. The wild animals of this district seemed to be thoroughly infected, and human cases were found not only in Nyassaland, but also in northeastern Rhodesia, Portuguese East Africa, and South Zambesia. Bruce, however, did not believe that the disease would spread, nor that it would ever assume the terrible proportions of the sleeping-sickness of the Congo or Uganda, since it had probably existed in these areas from time immemorial.

SMALL-POX AND VACCINATION. The question as to the duration of immunity following vaccination is a much disputed one, and in the nature of the case, impossible of definite solution. A number of investigations, however, based on the percentage of successful revaccinations threw some light on the matter. Kitasato's results, from the Imperial Institute at Tokyo, were based on a series of 931 revaccinations. He obtained successful revaccinations approximately as follows: After 1 year, 14 per cent.; after 2 years, 33 per cent.; after 3 years, 47 per cent.; after 4 years, 57 per cent.; after 5 years, 61 per cent.; after 6 years, 64 per cent.; after 7 years, 73 per cent.; after 8 years, 80 per cent.; after 9 years, 85 per cent.; after 10 years, 89 per cent. Lescohier, of Detroit, published in 1913, the results of a series of nearly 500 revaccinations. The percentage of "takes" being as follows: After 1 year, 28 per cent.; after 2 years, 33 per cent.; after 3 years, 48 per cent.; after 4 years, 40 per cent.; after 5 years, 50 per cent.; after 6 years, 23 per cent.; after 7 years, 68 per cent.; after 8 years, 80 per cent.; after 9 years, 77 per cent.; after 10 years, 85 per cent. After an interval of ten years the percentage rose steadily until at 17 to 34 years revaccination was practically always successful. King reported also in 1913, some interesting data based on observations made on Asiatics (Shans, Burmese and Chinese). In a group of 380 adults who had been vaccinated when under 15 years of age, 5.6 per cent., and in a group of 94 who had been inoculated above that age, 3.2 per cent. had been attacked by small-pox in later life. In a series of 312 patients who had been inoculated under 15 years, vaccination resulted successfully in 80.3 per cent., and in 22 with a history of having been previously vaccinated after their 15th year, 81.8 per cent. resulted in "takes." In 96 adults, who had suffered from natural small-pox at various ages, and who were freely marked, 75 per cent. were successfully vaccinated. Kitasato estimated that immunity was practically gone after 10 years. Millard states that the government report of the German confederacy shows from 91 per cent. to 93 per cent. of successful revaccinations after 10 years, and concludes that immunity acquired through vaccination begins to disappear from the second year, and by the tenth year it disappears almost completely. Sanitarians are agreed that the present system of vaccination is not sufficiently rigid. The disease has been widely disseminated during the last few years, indicating that the country as a whole is far from being well protected. See VITAL STATISTICS.

SMITH, BENJAMIN ELI. An American lexicographer, died February 24, 1913. Born in Beirut, Syria, in 1857, where his father was a missionary, he graduated from Amherst College in 1877, and afterwards studied at Leipzig University, and for a time taught in Johns Hopkins University. In 1889 he became managing editor of the *Century Dictionary*, and from 1894 until the time of his death was its editor. He was also editor of the *Century Cyclopædia of Names*, the *Century Atlas*, and the *Century Dictionary Supplement*. He translated several Latin authors, including Cicero, Marcus Aurelius, and Epictetus.

SMITH COLLEGE. An institution for higher education of women, founded at Northampton, Mass., in 1871. The enrollment in all the departments of the college in the autumn of 1913, was 1549. The faculty numbered 128. There were in addition several members of the library staff and secretaries. There were no noteworthy changes in the faculty during the year. The college received pledges for donations amounting to $1,052,000 in 1913. The productive funds at the end of the collegiate year 1912-13 were $1,512,475, and the income, $69,767. The library contains about 48,000 volumes. The president is Marion L. Burton.

SMITHSONIAN INSTITUTION, THE. The activities of the institution under its plan of organization cover practically the entire field of natural and physical sciences, as well as anthropological and archæological researches. The institution was founded for the increase and diffusion of knowledge. It affords facilities for the advancement of human knowledge through original research and investigation in every field, and educates the people through the publication of the results of such researches. The extent of the activities of the instituion is limited only by the amount of funds available. During recent years its private income has been supplemented on several occasions by friends of the institution, who have provided the means of carrying on certain explorations and lines of research. Some of the projects proposed are such as could not properly be carried on through government appropriations, but which the institution could readily undertake with the means available.

In 1912, there was organized the Research Corporation. This was founded primarily for handling Cottrell patents offered to the institution for the benefit of research. Work of this corporation progressed steadily during 1912-13. The work is chiefly related to investigations into the precipitation of dust, smoke, and chemical fumes, by the use of electrical patents.

During the year the institution continued to carry on field work in various lines throughout the world by means of allotments from its funds. The institution came into the possession of a laboratory for the study of questions relating to aerodynamics, which was closed from the time of the death of its director, the late Dr. S. P. Langley, formerly secretary of the institution. In May, the secretary of the institution was authorized to reopen this laboratory under the name of the Langley Aerodynamical Laboratory. Its functions include the study of problems of aerodromics, particularly those of aerodynamics, with such research and experimentation as may be necessary to increase the safety and effectiveness of aerial locomotion for the purposes of commerce, national defence, and the welfare of man. This laboratory was organized in 1913.

During the year 1912-13, the director of the institution, Charles D. Walcott, continued his geological work in the Canadian Rockies. Considerable collections of fossils were made in several localities, and at the close of the field season, the collection of several thousands of specimens was shipped to Washington.

A plan has been formulated for a geological survey of Panama, under the joint auspices of the Isthmian Canal Commission, the United States Geological Survey, and the Smithsonian Institution. The general plan of the survey comprises a systematic study of the geology and mineral resources of the Canal Zone, and as much of the adjacent areas of the Isthmian region as is feasible.

Explorations in Borneo were carried on during the year, and many interesting and valuable results were obtained. The Lyman Siberian Expedition, which returned in September, 1912, resulted in securing 350 mammals for the national museum. This collection is one of the most important received in recent years. The expedition also made anthropological studies in Siberia and Mongolia. Studies were also made in Peru.

It is proposed to establish an American School of Archæology in China, under the auspices of the institution, and preliminary arrangements were undertaken to bring this about in 1913.

During the fiscal year, the institution issued 6260 printed pages, and the aggregated distribution comprised 182,883 copies of pamphlets and bound volumes. During the year, 12,930 volumes and parts of volumes, chiefly on scientific topics, were added to the Smithsonian deposit in the Library of Congress.

In memory of S. P. Langley, the board of regents of the institution in 1908, established the Langley Medal, "to be awarded for specially meritorious investigations in connection with the science of aerodromics and its application to aviation." The first award of the medal was voted in 1909 to Wilbur and Orville Wright. The second award of the medal was voted, on February 13, 1913, to Glenn H. Curtiss, and to Gustave Eiffel. See also UNITED STATES NATIONAL MUSEUM.

SMOKE ABATEMENT. The New York board of health ordinance prohibiting the discharge of dense smoke from any building, vessel, engine, or motor vehicle in New York City was declared unconstitutional by the court of special session in the summer of 1913, in a case involving the Edison Electric Company, but at the close of the year the decision was reversed by the appellate division of the State Supreme Court. The case was to go to trial to ascertain whether the ordinance was really violated. If the lower court decides in the affirmative the company can carry the case to the Court of Errors and Appeals and obtain a final ruling on the constitutionality of the ordinance. The lower court declared the ordinance unconstitutional because it arbitrarily prohibited the discharge of dense smoke, irrespective of volume or time of discharge. The history of attempts to control the smoke nuisance in New York, with a review of court decisions prior to those just mentioned, is given in *Bull. Dept. of Health*, City of New York, April, 1913. Several New Jersey court decisions during the year seemed to leave in a doubtful state the power of Jersey City to exercise full control over the emission of smoke from locomotives. *Smoke Investigation Bulletins* 3, 4, and 5, of the University of Pittsburgh (1913), deal respectively with the psychlogical, economic, and meteorological aspects of the smoke nuisance.

SOCCER. See FOOTBALL.

SOCIAL CENTRES. See MUNICIPAL GOVERNMENT, under heading so entitled, and also under *Statistics of Social Centres.*

SOCIAL ECONOMICS. Within the past decade a department of economic study under the title of social economics has been differentiated from the traditional problems pursued by the professional economists. The viewpoint of social economics is not new, since it was presented by John Stuart Mill and was an important factor in the rapid development of sociology. In contradistinction to theoretical economics and the orthodox approach to the problems of industrial life, social economics lays stress upon problems of human welfare considered in terms of health and safety, rather than upon the the volume of production or the profits of enterprise. It would, therefore, so modify industrial organization as to enlarge the opportunities of unskilled labor, remove every vestige of exploitation, and the industrial causes of poverty, and prevent accidents and sickness due to employment. It gives much attention to the protection of child workers and of women in industry. It seeks the establishment of minimum standards in industry, these to include minimum wages, maximum hours of employment for children, women, and men, and health and safety standards in all factories and shops. Material coming within the scope of social economics will be found under the following headings: BUREAU OF SOCIAL HYGIENE; CHILD LABOR; LABOR LEGISLATION; MINIMUM WAGE; OCCUPATIONAL DISEASES; OLD-AGE PENSIONS; PROSTITUTION; SOCIOLOGY; WELFARE WORK; WIDOWS' PENSIONS; WOMEN IN INDUSTRY; and WORKMENS' COMPENSATION.

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SOCIAL HYGIENE, BUREAU OF. See BUREAU OF SOCIAL HYGIENE.

SOCIAL INSURANCE. See WORKMENS' COMPENSATION.

SOCIALISM. THE INTERNATIONAL ORGANIZATION. In the interim from one international Socialist congress to the next, the general affairs of the international movement are managed by a bureau formed of delegates of the 41 Socialist parties of 27 countries and having its permanent seat in Brussels. In December, 1913, however, the bureau held an important special session in London. Its immediate concern was with attempts to harmonize more or less discordant Socialist groups in Great Britain and in Russia, an account of which is given in paragraphs below, dealing particularly with the movement in those countries. The bureau also busied itself in drawing up the programmes for the international congress which was to be held in Vienna in August, 1914: it was decided to discuss at that time problems connected with unemployment, the high cost of living, alcoholism, imperialism, and Socialist tactics in case of war, and to celebrate in a fitting manner the fiftieth anniversary of the establishment of the International Association of Workingmen, by Karl Marx.

SOCIALISTS AND MILITARISM. One of the most striking effects of the Balkan War (see TURKEY

AND THE BALKAN PEOPLES) was the feeling of apprehension and alarm which the conflicting interests of the great powers in the outcome of the struggle provoked and which swept over the whole continent, carrying in its wake all manner of proposals to increase armaments. In Germany bills enacted in June augmented the peace-footing of the army by 19,000 officers and 117,000 men. France replied in August, with an act lengthening the term of compulsory service in the army to three years and thereby increasing her peace strength to 673,000. Austria-Hungary prepared to raise her peace-footing from 464,000 to 600,000. Italy added 25,000 men to her military establishment. Great Britain and Russia materially increased their naval expenditure. Army increases were made in Belgium, and a naval recruitment bill was debated in Spain. Elaborate fortifications were planned for the Netherlands, and even in the peaceful Scandinavian countries militarism found staunch champions. Theoretically, at least, Socialists were opposed to all these measures. Pursuant to an appeal addressed by the international bureau to the Socialist organizations of all European countries, demonstrations on behalf of peace had been held in the capitals and leading cities on November 17, 1912; and on November 24, a great international Socialist congress had been convened in Basle to consider the best means of preventing a general European war. But in practice, even the Socialists were affected by the high tide of national patriotism that engulfed Europe. Of course they talked a good deal about the disadvantages of militarism from the standpoint of labor; they kept up demonstrations and protests; in France they even coöperated with Syndicalists and Anarchists in inciting French soldiers to mutiny. But the undoubted unpopularity of their anti-militaristic propaganda made their leaders fearful of attempting the much-heralded general strike as a cure for militarism. No general strike occurred, and when the military bills came before the various parliaments the Socialist deputies, while openly disclaiming them and unanimously voting against them, as a rule aided in passing the financial measures which made them possible, contenting themselves with the assurance that the new taxes would fall most heavily upon capital. Thus, the 111 Socialist deputies in the Reichstag fought the new German army bill, but did not obstruct it, and then, with unanimity, voted the resources demanded by the government for its enforcement. This somewhat ambiguous attitude of Socialist deputies provoked considerable factional differences within the party not only in Germany, but also in France, Italy, Austria-Hungary, and Russia.

GERMANY. August Bebel (q.v.), the Socialist veteran and for many years the organizer and leader of the large Social Democratic party, died in Switzerland, on August 14, at the age of 72. He was succeeded in the leadership of the party by Herr Friedrich Ebert. The principal acts of the 111 Socialist deputies in the Reichstag were: voting against the new army bill, securing a progressive tax on wealth, supporting Herr Liebknecht's charges of bribery and corruption preferred against the Krupp firm, and participating in the vote of censure against the government on account of the Zabern incident (for these subjects in detail, see GERMANY, *History*). At the twenty-second national congress of the German Socialists, opened at Jena, on September 14, two questions were uppermost: (1) Should the action of the deputies in the Reichstag with special reference to militarism be endorsed; and (2) Should a general strike be attempted in order to secure electoral reform in Prussia. The opposition to the former on the part of strict Marxians, who would repudiate any suggestion of compromise with militarism, was so slight that a commendatory resolution was carried by a large majority. On the question of the general strike, the division was sharper: the Marxians vigorously supported it; the Reformists declared it would inflict great hardship upon labor unions and would alienate many votes from the party. The result was that the Reformists, with the aid of trade unionists, secured the adoption of a mild resolution stating that the German Socialists, while permitting the preaching of the idea of the general strike as a last resort, condemned the principle of the revolutionary, anarchistic strike and promised to preserve a close alliance between the Socialist party and the trade unions. Membership statistics reported to the Jena congress showed no important gain during the year. Socialism received a distinct set-back in the October elections in the grand-duchy of Baden. The *bloc* of National Liberals and Progressives deprived the Socialists of several seats in the Diet and some 11,000 electors out of the 36,000, who in 1909 voted the Social Democratic ticket.

FRANCE. The tenth annual congress of the Unified Socialists was held at Brest, March 23-25, 1913. The number of paying members of the party had increased during the year by 5246, bringing the total membership of the eighty-one federations up to 68,903, of whom fully a third belonged to the two departments of the North (Lille) and of the Seine (Paris). It was reported that the party had lost municipal elections in several places, but had won in Toulouse, Limoges, Brest, Roubaix, Draguignan, Commentry, St. Denis, and St. Ouen. The financial statement showed the year's receipts amounting to 161,525 fr. and expenditures of 140,656 fr. The congress adopted a resolution condemning the proposed three years' service in the army, but did little else because its leaders, MM. Jaurès, Guesde, Sembat, and Albert Thomas, were absent in Paris on account of the cabinet crisis.

For some time French workingmen who are inclined toward Socialism have been divided in allegiance between two irreconcilable groups. On one hand are the Unified Socialists, affiliated with international Socialism, a political party seeking to undermine the present social system by parliamentary methods; on the other hand is the General Confederation of Labor (the C. G. T.), the great central organ of French Syndicalism, decrying politics and applauding direct action, sabotage, and violence. The former denounce the latter as impractical and dangerous; the latter accuse the former of being mere self-seekers, who pose as champions of the proletariat. To add to the confusion and the polemics, a third group—that of the revolutionary, anarchistic communists—held a congress on August 14, formed a federation, and proceeded to assail Socialists and Syndicalists as politicians and temporizers. The quarrel between the Syndicalists and the Anarchists was particularly vituperative. The only common ground which all three groups found was a vigorous campaign against militarism. Mutinies among the soldiery at Toul, Mâcon, and Rodez were said to have been inspired by revolutionary anarchists. *L'Humanité*, the organ of M. Jaurès and of the Unified Socialists, published a protest of soldiers of the 153rd regiment at Toul against three years' service. In September, the General Confederation of Labor openly urged military sedition and a general strike. Twelve officers of the Syndicalists, including M. Yvetot, were arrested; and the anti-militarist agitation speedily subsided. In the chamber, the Unified Socialist deputies resisted the three-year service bill at every step, and on July 20, a formal protest, signed by all members of the group, was read from the tribune.

GREAT BRITAIN. Two matters especially affected Socialism in Great Britain during 1913. The first, and more spectacular, was the rise of Larkinism. Mr. James Larkin was the organizer and leader of the strike of the Irish Transport Workers' Union, which began in Dublin on August 26 and continued into the winter months (see STRIKES; GREAT BRITAIN, *History*). Mr. Larkin's organization and his methods of sabotage and violence were markedly similar to those of the French Syndicalists. Nevertheless the rough and sometimes brutal treatment accorded the strikers by the Dublin police elicited strong protests not only from the English Syndicalists, headed by Mr. Tom Mann and Mr. Guy Bowman, but also from the Socialist and Labor parties. On October 7 Mr. Larkin was condemned to imprisonment for seven months on a charge of sedition. The Socialists and Syndicalists replied by howling down Liberals at public meetings, until, on November 9, the government released the Irish leader. Mr. Larkin at once opened a "fiery cross" campaign at Manchester for a general strike in England in support of the Dublin strikers. There was rioting at his meeting in London on November 19, but no general disposition of the English workingmen to act on his appeals. However, the monument with which his name was commonly associated attracted a considerable following and tended, at least in its more extreme aspects, to approximate Syndicalism rather than Socialism. In this connection it may be stated that the first International Congress of Anarchistic Syndicalists was held in London September 27-October 2, 1913, and was attended by 33 delegates representing 47 organizations with about 125,000 members. Germans preponderated, and only a few unions of France and Great Britain sent delegates. Portugal, Switzerland, Austria-Hungary, and the United States were not represented at all. The congress issued a long declaration of principles, which particularly condemned political action. Resolutions were adopted protesting against the alleged persecution of Syndicalists by the Portuguese government and against the use of force in the Dublin strike. Reports showed that the Syndicalist movement is at a standstill in France; that its strength in the Netherlands is due to the unrepresentative character of the Parliament of that country; that in Italy against the 740,000 workers organized under Socialist auspices only 52,710 belong to purely Syndicalist unions; but that Syndicalism is making headway in the British unions.

The second matter affecting British Socialism was the effort to fuse the three separate societies into a single political movement. For many years there had existed side by side the Socialist party, the Independent Labor party, and the Fabian Society, all aiming to bring the Socialistic state into existence, but each clashing at times with the others. The International Socialist Bureau, which held a session in London in December, gave special attention to plans to unify these three groups. It was believed that its endeavors would be fruitful, for a common national council was formed whose proposals must be accepted and registered by the three parties as those of a national congress.

ITALY. The first general elections under universal manhood suffrage resulted, as was expected, in notable gains for the Socialists. Of 508 deputies in the new Chamber, 78 were Socialists—a gain of 37—and 2 described themselves as Syndicalists. The bulk of the Socialist party's seats represented the industrial proletariat of the prosperous north: each of the large northern cities of Milan, Turin, Florence, and Bologna returned three Socialists. In Rome alone did the party meet a rebuff and defeat. The electoral manifesto of the Italian Socialists bitterly arraigned military and colonial expenditures, but the leaders were soon divided over the question of imperialism as definitely applied to the subjugation of Libya. The majority of the new deputies followed the leadership of Signor Turati, who, like Guesde in France, remained literally loyal to the full Marxian doctrine and promised rigorously to oppose every request of the government for increased armaments or for financial appropriations for Libya. On the other hand, the followers of the reformist, Signor Bissolati, whom the election increased in numbers from 15 to 23, urged more conciliatory tactics, such as would not estrange the patriotically-minded from the Socialist cause. Signor Bissolati went so far as to reaffirm his willingness to coöperate with the Radical government. What with these divergencies within the Socialist party and with the common repugnance of both groups to the Syndicalists, Italian Socialism did not seem destined immediately to important achievement. It is interesting to note that the king appointed three Socialists to the Italian Senate.

NETHERLANDS. Dutch Socialists were able to profit by the confused political situation following the general elections in June. In the preceding Chamber the Socialists had 7 seats; in the new, thanks to agreements with the Liberals on second balloting, they secured 18. The combined Right, reduced to 45, lost its majority, and the ministry of Dr. Heemakerk, representing bourgeois and clerical interests, was therefore forced to resign. But the Liberals, who themselves had 37 seats, could take office only with the support of the Socialists, to whom, accordingly, they proposed to give three portfolios in a fusion cabinet and to allow full freedom of propaganda. The offer was tempting, and M. Troelstra, the Socialist leader, was disposed to accept it. But Bebel, Kautsky, and other prominent German Socialists at once pointed out that the Amsterdam International Congress of 1904 had strongly condemned the participation of Socialists with other parties in the actual conduct of government, and M. Troelstra was persuaded to consult his followers. At length a national congress of Dutch Socialists assembled at Zwolle, voted by a large majority, composed largely of trade unionists of Amsterdam, against fusion. The immediate acquiescence of M. Troelstra in this verdict prevented the Liberals from forming a ministry, but the Socialist deputies promised to support the extra-parliamentary cabinet of Cort van der Linden if he would adopt a programme of electoral reform and old-age pensions.

DENMARK. A political situation confronted Danish Socialists somewhat similar to that which faced their Dutch comrades. The elections to the Folkething in June brought in 31 Socialists, 31 Radicals, 41 Liberals, and 7 Conservatives, and obliged the Liberal-Conservative ministry of M. Klaus Berntsen to retire. Three times the Radicals offered ministerial fusion to the Socialists, and three times, mindful of the decisions of the International Congresses, especially those of Paris (1900) and Amsterdam (1904), the Socialists declined the offer. At last, however, the Socialist deputies decided, temporarily at least, to support a Radical ministry of M. Zahle. According to an interview published in *Le Peuple* (Brussels), M. Stauning, the Danish Socialist leader, declared that he told the king the Socialists were republicans, but, not possessing a majority, they did not think they had the right to urge the substitution of the republican form of government for the existing form, and that the king replied, "Such a declaration is quite natural."

UNITED STATES. Mr. William D. Haywood, organizer of the Industrial Workers of the World, gave offense to American Socialists by reason of his sympathy with Syndicalism and his utterances in favor of "direct action," and in February was removed from the national executive committee of the Socialist party by a referendum vote of 22,500 to 11,000. The Socialists won the mayoralty election in Two Harbors, Minn., March 18, but lost control of Berkeley, Cal., in April, and of Schenectady, N. Y., in November. Socialists were active in the coal miners' strike in West Virginia (see STRIKES), and in protesting in July against the arbitrary action of the municipal government of Seattle. For other American topics affecting Socialism, see UNITED STATES, *History*.

OTHER COUNTRIES. The great general strike which was undertaken in April by the Belgian Socialists in order to obtain electoral reform from the clerical government is discussed in detail under BELGIUM, *History*. In spite of universal suffrage and the comparatively large number of their professed partisans, the Austrian Socialists were apparently unable to make their party's principles felt in the Balkan events. The Hapsburg dominions are divided among so many hostile nationalists that they do not appear to be a very productive field for international Socialism. The Russian Socialists in the new Fourth Duma were torn in 1913 into two rival sects, as are the Russian Socialists outside the Duma. For ten years, despite the growth of the workingmen's movement, the two Russian Socialist groups—the Social Democracy, akin to the Social Democratic party in Germany, and the Revolutionary Socialist party—have fought each other with great virulence. Of the fifteen Socialist deputies in the Duma, eight affiliated with one side and seven with the other. Not even the anxious appeals of the International Socialist Bureau, meeting at London in December, served to unite them.

See also the section *History*, under various countries.

SOCIALIST BUREAU, INTERNATIONAL. See SOCIALISM, *Great Britain*.

SOCIALIST CONGRESS, INTERNATIONAL. See SOCIALISM, *International Organization*.

SOCIAL PHILOSOPHY. See PHILOSOPHY and SOCIOLOGY.

SOCIAL SERVICE, AMERICAN INSTITUTE OF. An organization founded in 1898 for the purpose of gathering and disseminating information on all branches of social thought and service. It supplies information, and advises as to method by correspondence. Its publications, lectures, and special reference library are open to the public. The services of the institute are free except when special investigations are required. Through its lecture foundation, the institute has been able to offer to its classes without compensation the services of Rev. James H. Ecob, D. D., as speaker on social subjects. These lectures have been in three series, treating of industrial problems, towns and villages, and the social gospel. The *Gospel of the Kingdom*, published monthly by the institute, took up during 1913 the subjects of Poverty, Wealth, Socialism, Eugenics, The Unfit, Rural Communities, The Mormon Menace, The Coming Church in Society, The Moral Training in the Public Schools, The Unemployed, and Peace. The officers are: President, Dr. Josiah Strong; lecturer, Dr. James H. Ecob; treasurer, John T. Perkins.

SOCIÉTÉ DES ARTISTES FRANÇAIS. See PAINTING AND SCULPTURE.

SOCIÉTÉ NATIONALE DES BEAUX ARTS. See PAINTING AND SCULPTURE.

SOCIOLOGICAL CONGRESS, SOUTHERN. This body held its second annual meeting at Atlanta, April 25-29. It was attended by eight hundred delegates. The plan of organization of the meeting included seven special conferences on the following topics: Organized charities; court and prisons; public health; child welfare; traveler's aid; race problems; the church and social service. The four days' conference on race problems was attended by both white and colored delegates and developed a spirit of coöperation and mutual understanding. The convict-lease system, the road chain-gangs, and other features of antiquated penology still found in the South were severely arraigned and plans for improvement discussed. Each of the seven divisions drew up resolutions setting forth new standards and programmes of reform. A committee of representative white men presented a statement setting forth the need of coöperation between health authorities and negro physicians, ministers and teachers, to fight tuberculosis and other contagious diseases; the need of less prejudice and partiality by the courts in their treatment of negroes; the shame of lynchings; and the necessity of better schools for negroes. The congress made a deep impression on Atlanta and the State of Georgia; its influence extended throughout the South; and it was an impressive demonstration of the new social aspirations of the Southern States.

BIBLIOGRAPHY. Children's Bureau, *Birth Registration; an aid in protecting the lives and* *rights of children; necessity for extending the registration area;* John M. Gillette, *Constructive Rural Sociology;* A. R. Wallace, *Social environment and moral progress;* Paul Leroy-Beaulieu, *La Question de la Population;* Corrado Gini, *The Contributions of Demography to Eugenics;* G. K. Chesterton, *The Evils of Eugenics;* C. B. Davenport, *State Laws Limiting Marriage Selection;* E. M. Elderton, *On the Correlation of Fertility with Social Value;* E. F. Mann, N. J. Sievers, and R. W. T. Cox, *The Real Democracy.* In addition to these titles, references will be found under Political Economy, Social Economics, Syndicalism, and Women in Industry.

SOCIOLOGICAL SOCIETY, American. The eighth annual meeting of this society was held at Minneapolis, Minn., December 27-30. The general subject of the meeting was "Problems of Social Assimilation." The first address was that by Robert A. Woods of the South End House, Boston, on "The neighborhood in social reconstruction." There followed an informal conference with Prof. John M. Gillette, University of North Dakota, as chairman, on "What are the best contributions sociologists can make at the present toward improvement of the conditions of life in the United States, particularly the central portion of the country?" As a phase of this problem was the question whether any kind of sociological instruction should be introduced into the lower grades of our educational system? The address of Prof. Albion W. Small of the University of Chicago, president of the society, was on "A vision of social efficiency." At the same time was the address of President David Kinley of the American Economic Association, on "The renewed extension of government control of economic life." Prof. F. A. McKenzie of Ohio State University presented an address on "The assimilation of the American Indian"; and Prof. H. A. Miller of Olivet College, on "Rising national individualism, with particular reference to the Bohemians." Mr. Albert E. Park of Boston read a paper on "Racial assimilation in secondary groups with particular reference to the negro"; and Prof. William I. Thomas of the University of Chicago, on "The Polish situation: An experiment in assimilation." A round table with Prof. F. R. Clow of the State Normal School, Oshkosh, Wis., as chairman, was held on "The teaching of sociology in the normal school"; and an informal conference with Pres. George E. Vincent of the University of Minnesota, chairman, on "Is it possible for American sociologists to agree upon a constructive programme?" An entire forenoon was devoted to a paper by Albert E. Jenks of the University of Minnesota on "The American policy in the Philippines" and one by Charles R. Henderson of the University of Chicago, on "The relation between China and the United States."

SOCIOLOGY. Material of sociological interest will be found under many headings. Under the article Labor will be found cross references to numerous articles treating various phases of the labor movement. Likewise the article Social Economics contains a list of topics treating social aspects of industrial life. See also Political Economy; and Carnegie Institution of Washington, *Department of Economics and Sociology.*

SOILS. A realization of the fact that the demands of increasing population for food had in recent years outrun increase in production led to great activity in the study of the present and prospective production capacity of the soil. This activity was rapidly becoming world wide, and was evident not only in the older countries which had long been under the necessity of resorting to most intensive methods of culture to maintain their teeming populations, but also in the newer countries which, like the United States, had hitherto been able even by careless methods of farming to draw from vast virgin soil resources not only abundant food for domestic consumption but large amounts for export to less fortunate countries.

Soil Surveys. While many countries were giving more or less attention to the subject, the United States continued to lead the world in the comprehensiveness of its soil survey work. Since the beginning of such work in 1899 the United States Bureau of Soils had up to June 30, 1913, surveyed and mapped 703,235 square miles, or 450,070,400 acres of soil. During the year ended June 30, 1913, the bureau surveyed and mapped 80,640 square miles, or 52,609,600 acres. Of this area 21,210,880 acres in 31 States were covered by detailed surveys (1 inch to the mile) and the remainder (in 4 States) by reconnoissance surveys (4 or 6 miles to the inch). Nineteen States coöperated with the Bureau of Soils in the surveys in 1913. The reconnoissance surveys were restricted mainly to undeveloped areas and to the classification of lands in the forest reserves for which Congress made special provision during the past fiscal year. As a result of the examination of the lands in the forest reserves about 1,000,000 acres were made available for agricultural purposes, while the areas now being examined for classification total about 3,000,000 acres.

Scientific Investigation. The volume of scientific investigation relating to soils during 1913 was large, but opened up few new lines and revealed no startling discoveries. Important additions were made to the knowledge of the organic constituents of the soil. Schreiner and his colleagues in the Bureau of Soils added a number of compounds to those already isolated from the organic matter of the soil, demonstrating the harmful or beneficial effect of many of these compounds on plant growth in water cultures and field experiments. Among the compounds so isolated and studied was salicylic aldehyd, which was found to be toxic to plants and to inhibit bacterial activity in the soil. It appeared to be a common constituent of infertile soils.

Other causes of soil sterility—bacteriological and chemical—were studied. Much additional light was thrown on the nature of soil acidity and its relation to soil fertility. The suggestion was offered by F. V. Coville that a system of farming with acid tolerant crops might be worked out which would make it possible to profitably utilize acid soils without the expense of correcting the acidity by liming or otherwise. Further investigations by H. L. Bolley tended to show that his previous conclusion regarding the cause of infertility in "flax-sick" soils applies equally to "wheat-sick" of the Northwest, viz., that it is due to disease infection of seed and soil and not to depletion of plant food in the soil.

In general it was shown that while in some cases infertility is due to chemical causes and must be corrected by chemical means, in many other cases it is due to biochemical or bacteriological causes and is corrected by partial sterilization, particularly by means of heat or volatile antiseptics. It seemed quite probable that the practice of heating soils might be profitably extended not only in case of greenhouse soils but within certain limits to outdoor soils. Attention was called during the year to what seemed a gigantic natural demonstration of the advantage of partial sterilization of soils by heat, viz., the rapidity with which the soils of St. Vincent recovered after being devastated by the eruptions of Soufrière in 1902-3. Although the island was covered and vegetation was almost completely destroyed by the volcanic dejecta, not only had the natural vegetation largely reappeared but the soils seemed more fertile for cultivated crops than before, a result attributed to partial sterilization and destruction of harmful organisms in the soil. Similar conditions appeared to prevail on certain Alaskan soils covered by dejecta from Katmai June 6 and 7, 1912.

LITERATURE. The most important contribution to the literature of soils during the year was probably United States Bureau of Soils Bulletin 96, *Soils of the United States*, which describes the soils encountered in the soil survey of the bureau to January 1, 1912, and also discusses methods of soil classification.

SOLAR PHYSICS. See ASTRONOMY.

SOLOMON, SIR RICHARD. A British administrator, died November 10, 1913. Born in Cape Town in 1850, he was educated at the South African College in that city, and at St. Peters College, Cambridge; in 1879 was called to the bar; was appointed legal adviser to Lord Rosemead on the latter's mission to Mauritius in 1886; held many offices in the government of Cape Colony; and was legal adviser to the Transvaal administration, and to Lord Kitchener in 1901-02. From 1902-07 he was attorney-general of the Transvaal, and was acting lieutenant-governor of that colony in 1905-06. From 1907-10 he was agent-general in London for the Transvaal, and in the latter year was appointed high commissioner for the Union of South Africa. He was created a knight in 1905.

SOMALI COAST. See FRENCH SOMALI COAST.

SOPHIE, QUEEN MOTHER OF SWEDEN, died December 30, 1913. She was born in 1836 at Biebrich, the daughter of Duke Wilhelm of Nassau and Princess of Württemberg. On June 6, 1857, she was married to Prince Oscar of Sweden, the third son of King Oscar I. The eldest son, Prince Gustave, died in 1852 and the second son, Charles, who ascended the throne in 1859, died in 1872, without leaving a direct heir. Prince Oscar thereupon became king of Sweden and Norway and Sophie became queen. For the last twenty-five years of her life she was practically an invalid, and took little part in court functions or public affairs. When her health permitted, she devoted herself chiefly to religious interests.

SOUTH AFRICA, UNION OF. A British colony, consisting of four provinces, forming a legislative union under a governor-general. Pretoria (29,618 inhabitants) is the capital, and Cape Town (29,863) the seat of the legislature.

AREA AND POPULATION. The table below shows area and population (census of May 7, 1911), with the white population, by provinces and annexed territories, as follows:

	Sq. m.	Pop. 1911	Whites
Cape of Good Hope	206,860	1,553,630	546,162
Bechuanaland	51,524	99,553	14,917
Transkeian Territories:			
East Griqualand	7,594	249,088	7,950
Tembuland	4,129	236,086	8,138
Transkei	2,552	188,896	2,189
Pondoland	3,906	234,637	1,383
Walfish Bay	430	637	32
Total Cape Province	276,995	2,564,965	582,377
Natal	24,866	974,437	95,994
Zuzuland	10,424	219,606	2,120
Total Natal	35,290	1,194,043	98,114
Transvaal	110,426	1,686,212	420,562
Orange Free State	50,389	528,174	175,189
Total Union	473,100	5,973,394	1,276,242

Total number of natives, 4,019,006; other colored, 678,146. European birth and death rates: Cape Province, 30.711 and 10.834 per 1000 (colored, 33.000 and 21.349); Transvaal, 36.78 and 11.92; Orange Free State, 29 and 8. See articles on the separate provinces.

See also CAPE OF GOOD HOPE PROVINCE.

MINING. The extensive mineral deposits constitute the chief source of the country's wealth. In the output of gold and diamonds the union leads the world. Other important products are coal, copper, and tin, asbestos, graphite, manganesite, zinc, lime, salt, etc. Exports of tin and copper ores, 1911, were valued at £411,871 (Transvaal, £410,848; Cape, £1023) and £552,145 (Transvaal, £48,237; Cape, £503,908) respectively. Value of total export of tin ore to end of 1911, £1,123,262; of copper ore, £279,750. Value of other base minerals produced in 1911, £246,073. Value of total mineral output and number of white and colored laborers employed (1911) are shown below:

	Laborers		Output
	White	Col'd	£
Transvaal	32,245	227,852	38,892,509
Cape Provinces	4,395	26,198	6,152,554
Orange Free State	1,341	13,652	1,829,159
Natal	580	11,677	805,072
Total Union	38,561	279,379	47,679,294

Gold. In June, 1912, there were employed in the gold mines 25,165 white and 210,604 colored laborers—25,129 and 210,362 in the Transvaal, 9 and 20 in the Cape province, 5 and 10 in the Orange Free State, 22 and 212 in Natal. The total output for 1911 was £35,049,041 (world's output for the year, £97,250,000), of which the Transvaal furnished £35,041,485 (8,249,461 fine ounces). The Witwatersrand mines contributed £33,599,689 to the Transvaal output. The estimated value of the Transvaal output for 1912 was £38,757,560.

Diamonds. The laborers employed in the diamond mines numbered in June, 1912, 4617 white and 41,442 colored (878 and 15,475 in the Transvaal, 2647 and 15,603 in the Cape province, 1092 and 10,364 in the Orange Free State), besides several thousand individual diggers. In the table below is given the output in carats, with value in pounds sterling, for two years:

	Carats		£	
	1910	1911	1910	1911
Transvaal...	2,090,068	1,848,341	1,416,464	1,628,876
Cape.........	2,586,294	2,250,506	5,267,659	5,506,412
O. F. S.....	780,195	798,152	1,505,074	1,611,436
Total......	5,456,557	4,891,999	8,189,197	8,746,724

Coal. Employed in the coal mines in June, 1912, were 1223 white and 22,863 colored laborers (Transvaal, 530 and 9826; Cape, 83 and 1070; Orange Free State, 121 and 1749; Natal, 489 and 10,218). Steamers calling at Durban take much of Natal's supply of coal and most of the remainder is exported. The output from the other provinces is consumed by the railways, mines, and other local industries. Below are given production figures for the year 1911, the value, and the pit's mouth value of the total output to end of 1911 (in Natal, from 1903 only):

	1911		Total
	Tons	£	£
Transvaal	4,343,680	1,020,539	12,748,527
Cape	89,023	51,550	2,182,857
Orange Free State	482,690	137,616	1,025,114
Natal	2,679,551	725,448	7,574,788
Total Union......	7,594,944	1,935,153	23,526,231

CROWN LANDS AND FORESTS. The land settlement act passed in 1912 provides for government purchase and sale of lands to bona fide settlers on easy terms, and for the advance of funds for the purchase of necessary implements, stock, etc. The government controls for such distribution about 10,196,306 morgen in the Transvaal, 10,690,611 in the Cape province, 52,880 in the Orange Free State, and in Natal and Zululand, 403,825 acres surveyed and 1,688,580 acres unsurveyed. The government forest reserves aggregate approximately 1,843,036 acres. The total revenue from crown forests in 1911 was £90,874; expenditure, £112,815.

COMMERCE. Trade figures beginning with 1910 are for the Union as a whole, not for the separate elements. The imports into the Union in 1910 and 1911 were valued at £36,727,367 and £36,925,384 respectively, exclusive of specie, which amounted to £2,165,430 in 1910 and £1,097,698 in 1911. There is a slight discrepancy between these figures and the totals generally quoted as official—£38,940,694 in 1910, and £38,035,495 in 1911—due to the inclusion of specie imported from Rhodesia, amounting to £47,897 in 1910 and £12,413 in 1911. Included with the foregoing totals for merchandise are imports of government stores —£2,720,189 in 1910 and £1,979,937 in 1911. Imports of mining machinery: £1,279,403 in 1910 and £947,283 in 1911; of manufacturing machinery, £306,775 and £262,814; of electrical machinery, £803,168 and £528,395; of agricultural machinery, £148,964 and £196,417; of printing machinery, £44,430 and £58,485.

Exports for 1910, £53,939,112, including gold and silver, £81,742; diamonds, £8,480,875; wool, £3,830,830; ostrich feathers, £2,272,846; etc. For 1911: £57,308,214.

Imports for 1912, £38,833,960, including cottons, £3,209,000; apparel, £2,847,000; machinery, £1,757,000; novelties, £1,420,000; leather goods, £1,267,000; iron wares, £1,231,000; iron, £1,145,000; iron wire, £1,027,000; chemical products, £1,003,000; etc. Exports, 1912, £62,970,219, including gold, £38,362,000; diamonds, £9,153,000; wool, £4,781,000; ostrich plumes, £2,610,000; hides, £1,691,000; coal, £1,174,000; mohair, £967,000; corn, £453,000; copper, £449,000; etc.

Tonnage entered in 1910, 11,494,855; in 1911, 12,552,708.

COMMUNICATIONS. The South African railways include the late Central South African Railways and the Cape and Natal government lines; the mileage of 3 ft. 6 in. gauge, 2 ft. 0 in. gauge, and the total, are given below:

	3 ft. 6 in.	2 ft. 0 in.	Total
Cape	3,159	238¼	3,397¼
Orange Free State..	1,076½	.....	1,076½
Transvaal	1,993½	26¾	2,020¼
Natal	875¾	176¾	1,352½
Total	7,104¾	441¾	7,546½

Privately owned lines in operation aggregated 545 miles. Miles of telegraph lines open, 14,920; of wires, 55,934; telephone mileage, 47,852.

FINANCE AND GOVERNMENT. Revenue and expenditure for 1910-11 are placed at £14,448,150 and £15,075,627, including on both sides £1,477,000 for repayment of debt specially appropriated out of balances at date of union; for 1911-12, at £17,284,848 and £16,603,693. The public debt totaled, March 31, 1912, £117,260,535 (exclusive of Swaziland loan of £100,000).

The governor-general (1913, Viscount Gladstone of Lanark) is aided by an executive council as follows: Gen. L. Botha, premier and minister for native affairs; Gen. J. C. Smuts, finance and defense; Capt. H. Burton, railways and ports; N. J. de Wet, justice; H. C. van Heerden, agriculture; F. S. Malan, instruction; A. Fischer, interior; Sir Thomas Watt, public works, etc.; H. S. Theron, public lands; J. A. C. Graaff, without portfolio.

HISTORY

THE BOTHA-HERTZOG CONTROVERSY. The conflict between imperialism and local patriotism was responsible for a new and significant development in South African politics: The partial disruption of the South African party and the alignment of Dutch South Africans on both sides of a political issue, rather than on one side of a racial conflict. In the 1912 YEAR BOOK the ministerial crisis of December, 1912, was noted. Imperialism then triumphed in the dismissal of General Hertzog from the ministry and the reconstitution of General Botha's cabinet. The prime minister vigorously condemned General Hertzog's statement that he "believed in imperialism only in so far as it benefited South Africa"; "General Hertzog," the premier declared, "has gratuitously and unnecessarily put the question whether the interests of South Africa should take preference over those of the British Empire. This question should not have been put. . . . Under our free constitution within the empire the South African nation can fully develop its local patriotism and national instincts." The controversy was continued throughout the session and stultified the legislative activity of Parliament. The government bill for the establishment of a national university was shipwrecked on the rocks of racial antipathy. Upon the question of increasing the present contribution to the imperial navy—£85,000 per annum—the ministry seemed undecided, even after two of its members had conferred with the imperial government in London. The Unionist Opposition, led by Sir Thomas Smartt, as well as a small group of Laborites, were thoroughly dissatisfied with the government, which, they asserted, had been paralyzed by party dissensions; and both Unionists and Laborites joined with General Hertzog's dissidents in upholding a motion of no confidence; the motion was defeated, however, by 68 to 42. This parliamentary victory for the ministry was subsequently confirmed by the Congress of the South African party at Cape Town on November 20, when General Botha was supported by 131 delegates. The minority faction of 90 delegates, led by General Hertzog, "bolted" the congress. To all intents and purposes General Hertzog had formed a new party; whether he would formally organize it or not remained yet to be seen.

THE INDIAN IMMIGRANTS' STRIKE. The weighing of South African interests over against imperial interests became painfully apparent in the latter part of the year, when the protests of Indian (Hindu) immigrants in Natal against racial discrimination aroused a lively sympathy in India and caused the Indian government no little anxiety. The issue then became clear: Would South Africa deal with the Indians in its own way regardless of the disquietude of the Indian government, or would it place the empire before the union? As a result of the discontent of the Hindus a large proportion of the 140,000 Asiatics in South Africa went on strike. In Ladysmith 1000 Indian strikers fought the police and gathered around one of their temples, armed with sticks, iron standards, and sugar-cane cutters; they were dispersed by the combined police and militia. Meanwhile Lord Hardinge, viceroy of India, was bringing pressure to bear on the South African government, hoping to obtain favorable terms for the Indians. General Botha, however, could not venture in the face of South African public opinion to yield to imperial considerations. As a convenient way out of the difficulty he appointed a commission —Sir William Solomon, Mr. Ewald Esselen, and Mr. James Wylie—to investigate the grievances of the Indians. See also STRIKES, under the section *South Africa.*

THE RAND STRIKE As an industrial dispute, the strike of the miners in the Rand district has been treated in the article on STRIKES; but the struggle, which lasted from June 13 to July 5 and culminated in the Johannesburg riot, when an unruly crowd was fired upon and dispersed, leaving 22 persons killed and over 200 wounded, was not without political significance. On the one hand, by proclaiming martial law and allowing strikers to be shot down in the streets, the government had incurred the enmity of the workmen. Even the government in London was somewhat embarrassed by Laborite disapproval of General Botha's policy. The Labor movement in South Africa, strengthened by the strike, was more formidable than ever before, and was not likely to rest content with the government's promises to appoint commissions of inquiry to consider the railwaymen's demands for an 8-hour day with a minimum daily wage of 8 s. for white adults, and to investigate general industrial conditions. On the other hand, employers and the upper classes generally concurred in the sentiments expressed by the two judges who investigated the strike. The government, according to this view, was not only justified in the use of the military, but should have taken action sooner.

SOUTHARD, PROF. ELMER E., M. D. See INSANITY.

SOUTH AMERICA. See various South American countries, and also EXPLORATION, *South America.*

SOUTH AUSTRALIA. A state of the commonwealth of Australia. Area, 380,070 square miles. Population (census of April 3, 1911), 408,558, exclusive of full-blooded aboriginals. Adelaide is the capital, with (1911) 32,981 inhabitants; population of the local government area, 42,294; with suburbs, 189,646. During the year railway lines amounting to 228 miles were opened and those under construction, twelve in number, aggregated 438 miles. Governor in 1913, Admiral Sir Day Hort Bosanquet, succeeded (March, 1914) by Lieut.-Col. Sir Henry Lionel Galway. Premier, A. H. Peake. See AUSTRALIA.

The premier, Hon. A. H. Peake, had under consideration a scheme for the construction of a large storage basin at Lake Victoria on the Murray River. In his budget speech Mr. Peake announced that the actual surplus for the year ending June 30, 1913, was £176,416; he estimated the revenue for the year 1913-14 at £4,550,720 (of which £2,280,000 was to be derived from the state railways), and the surplus at £7413.

SOUTH CAROLINA. POPULATION. The population of the State in 1910 was 1,515,400. According to the report of the Bureau of the Census, made in 1913, the population in that year was 1,572,285.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	1,975,000	38,512,000	$37,357,000
	1912	1,915,000	34,278,000	29,136,000
Wheat	1913	79,000	972,000	1,264,000
	1912	79,000	727,000	865,000
Oats	1913	360,000	8,460,000	6,007,000
	1912	324,000	6,966,000	4,598,000
Rye	1913	3,000	32,000	48,000
	1912	3,000	28,000	41,000
Rice	1913	4,900,000	147,000	132,000
	1912	8,000,000	200,000	186,000
Potatoes	1913	10,000	800,000	1,040,000
	1912	10,000	900,000	1,008,000
Hay	1913	210,000	244,000	4,563,000
	1912	194,000	*a*223,000	4,014,000
Tobacco	1913	43,800	38,288,000	4,594,000
	1912	35,000	*b*24,500,000	2,670,000
Cotton	1913	2,701,000	*c*1,330,000	80,621,000
	1912	2,695,000	1,182,000	69,963,000

a Tons. *b* Pounds. *c* Bales.

Mineral Production. The State produces phosphate rock and clay products. The phosphate mining industry does not have the same relative importance at the present time as it had in the later years of the last century. Until the discovery of the phosphate beds in Florida in 1899, South Carolina enjoyed practically the monopoly in the production of this mineral, but with the development of the more extensive beds in Florida, the State lost its supremacy. In 1912 131,490 long tons, valued at $524,760 were produced. South Carolina is one of the two States in which monazite has been produced in commercial quantities; the other and more important producer being North Carolina. In the three years prior to 1912 owing to heavy imports from Brazil, the production in both States had practically ceased. There was some gold mined in the State, but this had shown considerable decrease in recent years. In 1912 it was little less than $20,000. It was produced chiefly from a single mine. In addition to the substances mentioned, the State produces fuller's earth, lime, mica, mineral waters, sand and gravel, silver, and building stone. The total value of the mineral products in 1912 was $1,106,989, compared with $1,803,579 in 1911.

Finance The report of the treasurer shows a cash balance on December 31, 1912, of $766,216. The receipts for the fiscal year 1913 were $3,582,950. The expenditures were $3,610,533, leaving a cash balance on January 31 of $738,634. About one-half of the income is derived from tax on real estate, railroads, and personal property. More than one-half is for educational purposes, State Hospital for the Insane, and pensions. During the year, the State retired $350,000 of its bonded debt.

Charities and Corrections. The charitable and correctional institutions under the control of the State include the South Carolina Industrial School for White Boys at Florence; South Carolina Institute for Deaf, Dumb, and Blind at Cedar Springs; South Carolina Penitentiary at Columbia; and the Hospital for the Insane at Columbia.

Education. The total enrollment in the public schools of the State in 1913 was 361,161. Of these 167,914 were white, and 193,247 were colored. The average daily attendance of white pupils was 110,148, and of colored, 128,020, or for both races, 238,168. There were 777 male white teachers and 3807 white women teachers. The colored men teachers numbered 773, and the colored women teachers, 2101. The average salary for white male teachers was $530.28; for white women teachers, $302.48. For colored teachers, the average yearly salary for male teachers was $126.87, and for women, $123.90.

Transportation. The miles of single track operated in the State on June 30, 1913, were 3492.58. The railroads having the longest mileage in the State are the Southern Railway, 1122; the Atlantic Coast Line, 886; the Seaboard Air Line, 362; the Charleston and West Carolina Railway Company, 319.

Politics and Government. The legislature met in 1913, but passed no measures of more than local interest or importance. There was no election for State officers during the year, as the term of Governor Blease does not expire until January 12, 1915. The next State election is on November 3, 1914. The legislature on January 29 reëlected Benjamin R. Tillman United States senator. In January, Governor Blease revoked the commissions of notaries public, and State constables and officers in the State, and in May constables were dismissed because of the construction of the Webb liquor law prohibiting the shipment of liquor into prohibition territory. Governor Blease continued the free use of the pardoning power, bringing his record for the three years ending December 31, 1913 (less the ten days of January, 1910, before his inauguration) almost to the 1000 mark in pardons and paroles. One hundred of these were granted the day before Thanksgiving. Sumter completed its first year of government under the "city manager plan." In Orangeburg the recall in city politics, under the commission form of government law, was invoked for the first time, an effort being made to recall Mayor Bryant and Councilman Van Orsdale. Both officials were retained in office by large majorities. After a fierce factional fight for the Democratic nomination for Congress from the first district, John P. Grace, mayor of Charleston, brought charges of wholesale corruption against Richard S. Whaley, who got the nomination in the primary and later was elected without opposition. The charges were taken before a congressional committee on elections and were later thrown out by the committee. Mr. Whaley was elected in a special election called to fill the vacancy caused by the death of George S. Legare. In August seven counties voted for a return to the county dispensary system, thus bringing the total number of counties having dispensaries to 13. The other 31 counties of the State are under prohibition.

State Government. Governor, Coleman L. Blease; Lieutenant-Governor, C. A. Smith; Secretary of State, R. M. McCown; Attorney-General, J. F. Lyon; Treasurer, S. T. Carter; Comptroller-General, A. W. Jones; Superintendent of Education, J. E. Swearingen; Adjutant-General, W. W. Moore; Commissioner of Agriculture, E. J. Watson; Commissioner of Insurance, F. H. McMaster—all Democrats.

Judiciary. Supreme Court: Chief Justice, Eugene B. Gary; Justices, D. F. Hydrick, R. C. Watts, and Thomas B. Fraser; one vacancy; Clerk, U. R. Brooks—all Democrats.

State Legislature, 1913. Democrats: Senate, 43; House, 124; joint ballot, 167.

The names of senators and representatives to Congress will be found in the article United States, section *Congress*.

SOUTH DAKOTA. **Population.** The population of the State in 1910 was 583,888. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 643,121.

Agriculture. The area, production, and value of the principal crops in 1912-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	2,640,000	67,320,000	$37,699,000
	1912	2,495,000	76,347,000	28,248,000
Wheat	1913	3,775,000	33,975,000	24,122,000
	1912	3,675,000	52,185,000	36,008,000
Oats	1913	1,590,000	42,135,000	14,326,000
	1912	1,550,000	52,390,000	13,098,000
Rye	1913	50,000	660,000	330,000
	1912	16,000	312,000	162,000

		Acreage	Prod. Bu.	Value
Potatoes	1913	60,000	4,680,000	2,948,000
	1912	62,000	6,510,000	2,344,000
Hay	1913	460,000	[a] 552,000	3,588,000
	1912	460,000	672,000	4,099,000

[a] Tons.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $8,436,240, compared with $8,047,259 in 1911. The production of gold in the State in 1912 was $7,891,370, compared with $7,439,874 in 1911. The output in 1912 was the largest in the history of the State. The greater part was taken from the Homestake mine in Lawrence County. The silver production in 1912, mainly from refining gold bullion, was 206,460 fine ounces, compared with 203,755 in 1911. The gold production of the State in 1913, according to the estimates of the United States Geological Survey, made in December of that year, was $7,207,000, which is $691,370 less than the yield of 1912. The silver production fell from 206,260 ounces to 164,800 ounces. A nominal quantity of lead and copper was produced.

FINANCE. The report of the State treasurer for the fiscal year ending June 30, 1913, shows a balance in the treasury at the beginning of the year of $992,289. The receipts for the fiscal year amounted to $4,056,117, and the disbursements to $4,123,271, leaving a balance at the end of the year of $925,135. The State debt at the end of the fiscal year amounted to $15,925.

TRANSPORTATION. Railway mileage on January 1, 1912, was 4195. In 1912-13 there was very little additional construction carried on.

EDUCATION. The total enrollment in common schools of the State on June 30, 1912, was 90,389. Of these, 47,318 were male, and 43,071 were female. The total number of teachers employed was 5167, of whom 4322 were women and 845 were men. The average monthly salary of men teachers was $54.17, and of women teachers $48.75. The total expenditures for education in the year ending June 30, 1912, was $2,085,001.

CHARITIES AND CORRECTIONS. The institutions under control of the State Board of Charities and Corrections, with their populations in 1913, are as follows: The Penitentiary, Sioux Falls, 212; State Training School, Plankington, 113; State Hospital for the Insane, Yankton, 910; State School for Deaf Mutes, Sioux Falls, 237; State School for the Blind, Gary, 28; State School and Home for the Feeble Minded, Redfield, 241; and State Tuberculosis Sanitorium, Custer, 20.

POLITICS AND GOVERNMENT. There was no election for State officers during the year, since the term of Governor Byrne does not expire until January 1, 1915. The next State election is November 3, 1914. The legislature on January 21 elected Thomas Sterling (q.v.) United States senator to succeed Robert J. Gamble, whose term expired in 1912.

LEGISLATION. The legislature met in 1913 and passed several important measures, nearly all relating to conduct of business in the State. Among these was a uniform bulk sales act, and a uniform bill of lading act. A bill providing for a commission to study rural credits was introduced, but failed of action. See LIQUOR REGULATION.

STATE GOVERNMENT. Governor, Frank M. Byrne; Lieutenant-Governor, E. L. Abell; Secretary of State, Frank Glasner; Treasurer, A. W. Ewart; Superintendent Instruction, C. G. Lawrence; State Land Commissioner, Fred. Hepperle; Attorney-General, Royal C. Johnson; State Auditor, Henry B. Anderson—all Republicans.

JUDICIARY. Supreme Court: Presiding Judge, Charles S. Whiting; Justices, Ellison G. Smith, James H. McCoy, S. C. Polley, and J. H. Gates; Clerk, E. F. Swartz—all Republicans.

STATE LEGISLATURE, 1913. Republicans: Senate, 35; House, 89; joint ballot, 124. Democrats: Senate, 10; House, 11; joint ballot, 21. Republican majority: Senate, 25; House, 78; joint ballot, 103.

The names of senators and representatives to Congress will be found in the article UNITED STATES, section *Congress.*

SOUTH DAKOTA, UNIVERSITY OF. A State university of higher education, founded at Vermillion in 1882. The enrollment in all departments in the autumn of 1913 was 389. The faculty numbered 45. The most notable event in the history of the university during the year was the election of Dr. R. L. Slagle, president of the Agricultural College at Brookings, as president of the university. There were no notable gifts received during the year. The annual income of the university is about $135,000, most of which is derived from the State legislature. The library contains about 20,500 volumes.

SOUTHERN NIGERIA. A British west African colony and protectorate, lying about five degrees north of the equator and bordering the gulf of Guinea. It covers an area of 79,880 sq. miles, and had in 1911 a population numbering 7,857,983—Yorubas (the most important), Jejis (or Effons), Benins (or Binis), etc., in the western or Lagos province; Binis, Sobos, Jekris, Igaras, Ibos, Ijaws, Munchis, etc., in the central or Niger province and the eastern or Calabar province. Lagos (town) is the capital with 73,000 inhabitants (population of Lagos district, 102,190). Ibadan has 175,000 (district, 341,875); Abeokuta (capital of Egbaland, a native state), 51,000 (264,723); Oyo, 45,000 (217,583). Above are in Lagos province. In the central province are Warri, Onitsha, Benin City, Asaba, Forcados, Burutu, etc.; in the eastern province, Calabar, Opobo, Degema, Bonny, etc. The country is generally agricultural, but unfit for human habitation. The chief articles of export are palm kernels (176,390 tons valued at £2,574,405 in 1911), palm oil (79,337 tons, £1,696,876), rubber (2,164,285 lbs., £179,355), cacao (9,858,774 lbs., £164,664), cotton lint (2,238,208 lbs., £66,935), mahogany (£55,576), cotton seed (£4577), corn (£3128). Total exports in 1911, £5,354,101 (£5,258,451 in 1910); total imports, £5,234,186 (£5,122,370). Shipping entered and cleared (1911), 1,610,668 (1,601,045 in 1910). Revenue (1911), £1,956,176 (£1,933,235 in 1910); expenditure £1,717,259 (£1,592,282). F. S. James administered the colony and protectorate in 1912, under the governorship of Sir F. J. D. Lugard (A. G. Boyle, under Sir Walter Egerton, in 1911).

RAILWAYS. The railways of northern and southern Nigeria are controlled by the government of the latter colony. The line from Iddo Island (the southern terminus, connected by bridges with the mainland and with Lagos

Island) to Ibadan (123½ miles) was opened March, 1901; it was extended to Jebba (northern Nigeria) (182¾ miles), and thence to Minna (about 25 miles east of Zungeru) (about 145 miles). There it joins the original Baro-Kano line (356 miles).

See also Nigeria, for an account of the amalgamation of northern and southern Nigeria, under the name "Nigeria."

SOUTHERN SOCIOLOGICAL CONGRESS. See Sociological Congress, Southern.

SOUTHERN STATES EXPOSITION OF 1914. See Expositions.

SOUTH GEORGIA. A dependency of the Falkland Islands (q.v.).

SOUTH ORKNEY ISLANDS. A dependency of the Falkland Islands (q.v.).

SOUTH POLE. See Polar Exploration, Antarctic.

SPAIN. A constitutional monarchy of southeastern Europe, hereditary in the male and female lines of the house of Bourbon-Anjou. It occupies the eastern part of the Iberian Peninsula and is separated from France by the Pyrenees. Madrid is the capital.

Area and Population. The total area is 504,547 sq. kilometers, or 194,794 sq. miles. The population, according to the census of December 31, 1910, was 19,943,817, an average density for the kingdom of 40 to the sq. kilometer. The number of marriages in 1912 was 142,897 (141,756 in 1911), births 637,901 (625,172), deaths 426,269 (463,678), emigrants (provisional figures), 240,045 (175,567), immigrants 118,071 (105,055). The communal population (1910) of Madrid was 599,887, Barcelona, 587,411, Valencia 233,348, Seville 158,287, Málaga 136,365, Murcia 125,057, Saragossa 111,704, Carthagena 102,519, Bilbao 93,536, Granada 80,511, Lorca 72,795, Valladolid 71,066, Palma (Baleares) 67,544, Cádiz 67,174, Córdoba 66,831, Santander 65,046, Santa Cruz de Tenerife 63,004, Jerez de la Frontera 61,250, Las Palmas 60,338, Alicante 55,300, Gijón 55,088, Oviedo 53,269, Badajoz 35,039.

Education and Religion. The municipalities bear the main cost of education, which is free but totally inadequate. The clergy still control many schools, though recent legislation provides for inspection and direction of staff and curricula. Illiteracy is widespread. Each province maintains a high school, but the curricula are defective. Special schools are few and ill attended. There are universities in ten cities.

The Roman Catholic is the state religion and until 1910 public exercise of all other creeds was prohibited. In that year limited privileges were tendered to Protestant worship. It is estimated that, exclusive of sums expended on the service of the debt, one-tenth of the total national expenditure goes to the church. As a result of this heavy tax upon public resources and the creeping encroachment of church privileges, has developed the anti-clerical movement that has played so large a part in the history of Spain in recent years. Legislation is under advisement tending to secularization of schools, institution of civil marriage, neutralization of cemeteries, and prevention of the further multiplication of religious orders. There were in the country in 1910, 3007 convents, harboring 41,526 nuns, and 794 monasteries with 12,801 monks.

Production. The interior is an elevated tableland, surrounded by mountain ranges. The soil is fertile, but 60 per cent. of the area is uncultivated. All sub-tropical fruits thrive. Grains are easily grown and the vine flourishes in every province of the kingdom. Sherry, tent wines, malága, and alicante are Spanish wines in demand for export, and large quantities of ordinary wines are produced for home consumption.

The table of main crops below shows area and production for 1912 and (provisional) for 1913, with quintals (average) produced per hectare in 1912:

	Hectares		Quintals		Qs.
	1912	1913	1912	1913	per ha.
Wheat	3,895,069	3,809,767	29,878,446	29,968,813	7.7
Rye ...	786,905	770,345	4,792,506	6,356,125	6.1
Barley	1,334,800	1,535,568	13,062,280	13,878,230	9.8
Oats ...	517,439	542,797	3,343,551	3,895,579	6.5
Corn ..	465,045	465,000	6,368,002	6,300,000	13.7
Rice ...	38,498	39,000	2,442,260	2,500,000	63.4
Flax ...	1,800	768	8,600	5,875	4.8
Beets ..	43,075	43,100	10,789,738	10,800,000	250.5
Vines*	1,259,641	1,258,974	16,464,050	16,376,224	13.1
Sg. cane	7,242	......	2,732,760	......	...

* Yield in hectoliters of must.

Olives, citrous fruits, almonds, pomegranates, dates, etc., are exported. There were in 1911 (December 31) 546,035 horses, 904,725 mules and hinnies, 836,741 donkeys, 2,541,112 cattle, 15,725,882 sheep, 3,369,624 goats, 2,472,416 swine, and 3398 camels.

Iron, copper, and lead deposits exist in profitable quantities; the mines in operation, however, are run with foreign capital under foreign management. The total output for 1909 was valued at 200,555,171 pesetas. Some of the details of the 1910 output follow: 3,600,056 metric tons of coal (value, 54,411,891 pesetas), 3,231,418 of copper (35,054,004), 150,891 argentiferous lead (25,726,588), 216,738 lead (20,259,487), 8,666,795 iron (43,890,055), 156,113 zinc (7,046,461), 22,714 mercury (3,791,867), 211,958 anthracite (3,319,124), 245,518 lignite (2,414,791), 294,184 iron pyrites (1,784,590), 857 silver (992,977).

The value of the fisheries products is estimated at about 60,000,000 pesetas per annum. There are cotton, woolen, paper, cigarette, glass, and cork factories.

Commerce and Communications. The value of imports for home consumption and exports of domestic produce are shown in the table below in pesetas:

	1908	1911	1912
Imports	981,625,369	993,632,238	1,140,651,000
Exports	896,342,677	961,969,310	1,145,992,000

The principal countries of origin and destination in the 1912 trade (with values in thousands of pesetas) were Great Britain, 200,585 imports and 236,229 exports; France, 182,954 and 257,681; United States, 155,232 and 67,328; Germany, 138,330 and 74,340; Argentina, 39,576 and 71,043; Portugal, 56,858 and 50,579; Belgium, 33,122 and 49,913; British India, 45,248 and 914; Russia, 20,908 and 6666; Italy, 12,680 and 48,752; Switzerland, 21,670 and 12,380; Norway, 18,259 and 3022; Mexico, 12,246 and 18,331; Sweden, 15,563 and 1550; Philippines, 18,393 and 8430; Canaries, 1326 and 13,882; Netherlands, 16,867 and 62,485; Cuba, 3452 and 63,643, etc.

Vessels entered in the 1911 trade, 38,256, of 15,567,553 tons; cleared, 40,179, of 17,236,145. Merchant marine January 1, 1913, 596 steamers, of 761,281 tons net, and 301 sail, of 44,325.

Railways in operation January 1, 1912, 14,805 kilometers. Telegraph lines, 42,935 kms.; wires, 93,495 kms.; stations, 1956 (state 1118); wireless stations, 22 and 66 on board vessels. Post offices, 6041. During the year a government decree was issued authorizing the minister of public works to invite bids for constructing a 75-mile railway from Puertollano to Córdoba, thus shortening the route between Madrid and Seville. It was provided, in case no tenders were received and the final plan of the government was accepted, that the government engineers would draw up specifications for such a line.

Finance. The peseta (par value 19.295 cents) is the unit of value. Spain has still a paper currency. Gold is quoted at about 7 to 9 per cent. premium. Revenue and expenditure are given in pesetas below for three years:

	1910	1911	1912
Revenue	1,071,240,342	1,132,847,211	1,165,304,472
Expenditure	1,028,214,361	1,122,632,456	1,142,736,860

The details of the 1913 budget are given in the following table, in thousands of pesetas:

Revenue	1000 ps.	Expenditure	1000 ps.
Direct taxes	481,465	Public debt	410,515
Customs	177,300	Pensions	72,200
Sugar tax	41,000	Civil list	8,750
Alcohol tax	16,500	Legislature	2,486
Salt tax	45,500	Council	808
Transport	28,200	Foreign affairs	6,115
Stamps	90,000	Justice	19,512
Light tax	12,000	Worship	41,017
Other indirect	4,600	War	159,789
Tobacco *	155,000	Marine	70,673
Lottery *	41,250	Interior	79,309
Matches *	13,458	Instruction	62,711
Explosives *	3,700	Agriculture, etc.	90,840
Other*	2,430	Finance	17,964
Domains	24,238	Collection	40,760
Treasury	28,763	Colonies	1,900
		Morocco †	51,387
Total	1,165,304	Total	1,142,737

* Monopoly. † Campaign.

The public debt stood January 1, 1913, at 9,941,918,985 pesetas.

Army. Since the adoption of the law of June 29, 1911, providing for personal obligatory service, there has been considerable improvement in the Spanish army and in 1913 the effective strength of the permanent army, which had been 115,440 in 1912, was increased to 123,000. A decree issued in October, 1913, fixed the effective strength of the contingent called to the colors for the following year at 71,000 men. The contingent of recruits called for service are divided into two groups in which the first serves with the colors theoretically three years, but in practice usually two, while the other receives less than one year's training. In 1913 the second line, or portion of the army numbered about 260,000, the reserve 290,000 and the territorial reserve about 500,000.

Navy. The number of warships built and building in October, 1913, was as follows: One second-class battleship (9890 tons), 3 first-class protected cruisers (25,133), 1 second-class (5871) and 2 third-class (4083), 4 torpedo-boat destroyers (1845), 1 torpedo boat (127) of the first and 4 (284) of the second class, 8 first-class gunboats (6925) and 8 second- and third-class (3202)—all built.

The act of January 7, 1908, provides for 3 battleships—the *España*, launched February 5, 1912; the *Alfonso III.*, launched May 8, 1913; the third begun October 2, 1911—building at Ferrol. The *España* completed her trials September, 1913; she has a displacement of 15,460 tons and carries eight 12-inch and twenty 4-inch guns. Also building are 4 gunboats, of 800 tons, and 3 destroyers, of 370—all at Cartagena; and 24 torpedo boats for coastal service.

Government. The constitution of June 30, 1876, vests the executive power in a sovereign, acting through a responsible council of ministers. The legislative authority rests, conjointly with the king, in the Cortes, composed of a senate (180 life members—princes of the blood, nobles, magnates, and functionaries—and 180 members indirectly elected for five years) and a chamber of deputies (404 members elected for five years by the electoral colleges).

The reigning king, Alfonso III., was born May 17, 1886, after his father's death. Until he was sixteen years old (the age at which a Spanish sovereign attains his majority) his mother reigned as queen-regent. He married May 31, 1906, Princess Victoria Eugenie of Battenberg, and has three sons and two daughters. Heir-apparent, Prince Alfonso, born May 10, 1907.

The ministry formed by Señor Dato, upon the final resignation of Count Romanones, October 27, 1913, was as follows: E. Dato, premier; Marques del Vadillo, justice; Marquis del Lema, foreign affairs; Lieutenant-Colonel (Conde) del Serrallo, war; Vice-Admiral A. Miranda, marine; Conde de Bugallal, finance; J. Sánchez Guerra, interior; F. Bergamín, instruction; J. Ugarte, agriculture, etc.

History

The Liberal Ministry. Count Alvarado de Romanones, who succeeded the assassinated Liberal premier, M. Canalejas, in November, 1912, re-arranged his cabinet on December 31, 1912, as follows: Interior, S. Alba; foreign affairs, J. Navarro Reverter; finance, S. Suarez Juclan. For the moment, Count Romanones proposed merely to secure the ratification of the Franco-Spanish Treaty (see 1912 Year Book, France, *History*) and the approval of the budget. These secured, he proceeded, on January 31, to elaborate a programme including educational and tax reform, the negotiation of new trade treaties, the augmentation of the army and navy, the development of Morocco, and the creation of a department of labor to investigate industrial disputes, to supervise the conduct of means of communication, and to encourage workmen to make collective agreements with their employers.

Against Count Romanones the Conservatives waged an extremely bitter campaign, and early in January Señor Maura, followed by 92 Conservative senators and deputies, withdrew from the Cortes. In justification for this unusual procedure, Señor Maura said. "I consider the alliance of the Liberals with the Republicans and Socialists to be most dangerous for the monarchy. . . . Revolutionary propaganda is carried on with impunity and assassination is recognized as a legal means of resistance against the prerogatives of the crown." The monarch, however, took no warning from the Conservatives; on the contrary, he openly signified his approval of Count Romanones' ministry, and on January 14 invited S. Azcarate, the head of the Republican-Socialist Union, to confer with him at the palace. Finding their withdrawal of no avail, the Conservatives resumed their seats in the Cortes and S. Maura recalled his resignation from the leadership of the party. This humiliation of the Conservatives was hailed with joy by the other parties.

THE ATTEMPTED ASSASSINATION. On April 18, as the king was returning from a military review in Madrid, he was assaulted by a Catalonian anarchist, Sanchez Alegre. Alegre ran into the street near the Bank of Spain, seized the bridle of the king's horse, and drew a pistol. Alfonso, ready of wit, dismounted with more haste than grace, and stood sheltered behind his mount while the would-be assassin discharged three useless bullets. The police arrived in time to arrest Alegre, the king saluted the crowd, smiled at the incident, and rode on. The crowd, proud of their ruler's coolness, sent up ringing cheers for Spain and the king.

CABINET CRISIS. The Cortes assembled on May 26. Only three days had elapsed when S. Maura delivered a virulent attack on the ministry, concluding with the words, "the present policy of the Liberals has become an infectious Styx, which must at once be dammed by all antirevolutionists." Shaken by this attack, Count Romanones resigned on May 31. Alfonso refused to accept the resignation, however, and firmly upheld the Liberal ministry. Confident of royal support, Count Romanones resolutely prepared to put through the Senate the regional decentralization (*Mancomunidades*) bill, which had already passed the Chamber, and which has been amply discussed in the 1912 YEAR BOOK. In spite of the rebellious attitude of the Senate Liberals, the premier pressed his bill and secured the approval of article I. by a vote of 111 to 97. The Liberals in the Senate, headed by Señors Montero Rios and Garcia Prieto, passed from disapproval to open insubordination and twice occasioned cabinet crises—on June 1 and 11—but each time King Alfonso upheld his premier. Further action on the decentralization bill was plainly out of the question, and on June 16 the session was suspended for four months. Attempts to restore the lost integrity of the Liberal party proved futile. In October 125 senators and deputies applauded Garcia Prieto's anti-ministerial remarks. Rather than allow Count Romanones longer to remain in office, the dissident Liberals were ready to overturn the Liberal ministry, even at the risk of helping the Conservatives into office. This indeed was exactly what took place on October 25, after the reopening of the Cortes, when the Senate defeated a vote of confidence by 106 negative to 100 affirmative voices. Count Romanones at once resigned, and this time his resignation was accepted.

THE CONSERVATIVE CABINET. Turning to the Conservatives, the king would naturally have selected Señor Maura, the leader of the party. But Señor Maura, after an interview with Alfonso, abruptly betook himself to an unknown destination, leaving the capital in surprise. Apparently he had refused to form a government, whether because he foresaw trouble with the Liberal-minded monarch, or because he realized that the Conservative party was fast dividing into a reactionary irreconcilable wing led by S. La Cierva and a Liberalizing wing led by S. Azcarraga and S. Dato, or because, realizing his unpopularity he feared for his life,—it is difficult to decide. In his stead, Señor Eduardo Dato undertook to carry on the government with a cabinet constituted as given above (see *Government*). Some uncertainty was felt as regards the religious policy of the new government. Count Romanones had, it is important to note, reëstablished relations with the Vatican and appointed an ambassador to the Papal court. The anti-clerical programme of associations laws, lay education, civil marriage, and neutralization of cemeteries had not been expressly abandoned. It was not yet certain, although it appeared highly probable, that the present goverment, composed of loyal Catholics, would adopt an opposite policy.

RAPPROCHEMENT WITH FRANCE. After the ratification by the French and Spanish legislatures of the Franco-Spanish Treaty relative to Morocco (see 1912 YEAR BOOK, FRANCE, *History*), the relations between France and Spain exhibited remarkable cordiality. In the words of an official *communiqué* issued after M. Poincaré's visit to Madrid in October, "The conferences which took place between Count de Romanones, M. Lopez Munoz, and M. Pichon, and which touched on all the political, economic, and commercial questions interesting France and Spain, have made possible a perfect agreement of views between the representatives of the two countries. Their policy in Africa and in Europe will be developed in accordance with the principles laid down in the accords of 1904, 1907, and 1912, and will be inspired more and more by the sentiments of harmony and cordial friendship which respond to the interests as well as to the aspirations and the needs of both nations. These principles will find their very natural application in the general policies of the governments of Paris and Madrid, as well as in the special questions which attach to the work which they are accomplishing in Morocco." See also MOROCCO, *History*.

SPANISH LITERATURE. Many of the old favorites continued during 1913 to delight their audiences; some of the more recent writers strengthened their reputations; and a few new names claimed attention. According to official statistics, Spanish literature was slightly more prolific in 1913 than it had been in 1912, the exact figures being 920 works for 1912, and 973 for 1913. Under the term literature, the statisticians include literary criticism, classic and modern literature, novels, poetry, and dramatic works.

LITERARY CRITICISM suffered by the deaths, in 1910, 1911, and 1912, of such men as Julián Apraiz, Clemente Cortejón, and Menéndez Pelayo, critics in different, although neighboring, fields; and the year 1913 itself brought several other losses, which will be mentioned later, in the same branch of literature. The production of critical editions of classical texts, however, was in fairly good number. Fitzmaurice-Kelly has given us not only *The Oxford Book of Spanish Verse*, and a new *Life of Cervantes*, based entirely on the known authentic Cervantes documents, but a revised and enlarged French version (the French by himself) of his excellent little *History of Spanish Literature*, and also a revised *Bibliographie de l'Histoire de la Littérature espagnole*, published separately. Urban Cronan published in the *Sociedad de Bibliofilos Madrileños* the first volume of his *Teatro Español del Siglo XVI.*, containing eleven plays. In the *Clásicos Castellanos* there appeared the following works of scientific popularization: Guillén de Castro, *Las Mocedades del Cid* (by Said Armesto); Arcipreste de Hita, *Libro de Buen Amor* (by Cejador y Frauca); Marqués de Santillana, *Canciones y decires* (by Garcia de Diego); *Celestina* (by Cejador y Frauca); Villegas, *Eróticas ó amatorias* (by Narciso Alonso Cortés); *Poema de Mio Cid* (by Menéndez Pidal).

After the death of Cortejón, one of his favorite pupils, Juan Givanel Más was entrusted to carry on his excellent critical edition of *Don Quixote;* and the final volume of the text appeared this year. Its vocabulary is said to be in press. Francisco Rodríguez Marín has also completed his editions of *Don Quixote*, and of Suárez de Figueroa's *El Pasagero*. Although printed in one of the 1911 volumes of the *Revue Hispanique*, Miss Alice H. Bushee's edition of Mateo Alemán's *Sucesos* did not appear until 1913. John D. and Leora A. Fitz-Gerald published in the *Romanische Forschungen* a critical annotated edition of Lope de Vega's *Novelas*.

Fiction. Novel writing has continued to flourish, although there have been no markedly new tendencies. Spain's best novelists still think it wise to be thoroughly and independently Spanish, and it is to be hoped that they will long continue of that opinion. Pío Baroja presented to the public two volumes of *Memorias de un hombre de acción*, and a third novel entitled *Camino de perfección* (*Passión mistica*). Among other works that deserve attention are Manuel Machado's *El Amor y la Muerte;* Azorín's *La voluntad;* Pardo Bazán's *Cuentos trágicos;* several novels reprinted by Ricardo León, who was recently elected to the Spanish Royal Academy, among them *Los Centauros* and *El Amor de los Amores;* Felipe Trigo's *La Bruta, Los Abismos*, and *En la Carrera;* and Dicenta's *Encarnación*. Arturo Reyes, the author of *La goletera, De mis parrales, Romances andaluces, Cielo azill*, etc., died in June.

Poetry flourished even better than fiction. In the early summer there were Floral games (*Juegos Florales*) at Leon. Each year the king awards, on recommendation of the Royal Spanish Academy, the Fastenrath prize "for the best literary work in Spain during the year." In 1913 it was awarded to the editor of the *Ilustración Española y Americana*, R. Blanco Belmonte (already favorably known as the author of such works as *Aves sin nido, La Vida humilde, Los que miran mas allá*, and *La Patria de mis sueños*) for his volume of poems *Al sembrar los trigos*. Juan Menéndez Pidal, after a silence of twenty years since the appearance of his *Don Nuño de Rondaliegos, El Conde de Muñazán, Alalá*, and other works, reappeared with a volume of *Poesías* that are heartily applauded. Manuel Machado published *Poesías escogidas*, which have been highly praised. He is even spoken of as a modern Spanish Villon. A poet of the younger generation who had a cordial welcome was the humble day-laborer of Extremadura, Juan Luis Cordero, who gave to the public *Mi patria y mi dama*. Another of the younger men is the poet, also a writer of prose, Gabriel García Maroto, whose book of verse *La caravana pasa* was hailed as promising still more brilliant things for the future.

Drama. The drama was the most prolific *genre* of the year Early in the season the celebrated actors María Guerrero and her husband Fernando Díaz de Mendoza brought out *Veletas*, a very creditable work by a young playwright, Eusebio Gorbea, and the brilliant modern play (with a distinctly unusual ending), *Sobrevivirse*, by Joaquín Dicenta. In December Dicenta offered the public *El Lobo*, a keen, psychological study with intense dramatic power. Galdós received an ovation on the occasion of the first performance of his *Celia en los infiernos*. María Guerrero and her company staged brilliantly three plays by the poet Eduardo Marquina. The acting was enthusiastically applauded. The same can not be said of the plays: *Cuando florezcan los rosales* (fairly well received), *Por los pecados del Rey* (which as a drama is not very strong, but is a brilliant study of the characters of the time of Philip IV.), and *El Retablo de Agrellano* (a fantastic religious drama, so utterly fantastic that the audience could not understand the author's purpose). A really great success was won by Jacinto Benavente with his *La Malquerida*. A pretty comedy that was warmly received was *Mamá*, by Martínez Sierra. The Álvarez Quintero brothers, Serafín and Joaquín, have again pleased the public with a bright two-act comedy, with an epilogue, *Nena Teruel*, staged and acted as a benefit performance for and by that brilliant actress, Matilda Moreno, who created in 1901 the difficult title-rôle of Galdós's *Electra*. The pathological play was also in evidence, and tuberculosis was seriously treated by Dr. Bernabé Malo de Poveda in his *Amor y Conciencia*. There were also interesting revivals of a *Farsa* of Lucas Fernández, and a *Paso* of Lope de Rueda.

SPA TREATMENT. See Hydrotherapy; and Saratoga Springs.

SPAULDING DAMS. See Dams.

SPEAR, William Thomas. An American jurist, died December 8, 1913. He was born at Warren, Ohio, in 1834; studied law at Harvard; began practice in Warren, O., and continued it there until 1878, in which year he was appointed judge of the Court of Common Appeals, serving until 1888, when he became justice of the Supreme Court of the State. He was five times elected chief justice. His last term expired in December, 1912.

SPECIAL LIBRARIES ASSOCIATION. See Library Association, American.

SPINAL PARALYSIS. See Poliomyelitis.

SPIRITS. See Liquors.

SPIROCHÆTA. See Insanity.

SPRIGG, Sir John Gordon. A former premier of Cape Colony, died February 4, 1913. He was born in Ipswich, England, in 1830. After serving as an apprentice in a shipbuilder's yard, he became one of the shorthand writers in both houses of Parliament. On account of failure of his health he removed to South Africa in 1858 and soon afterwards bought a farm at King William's Town in Cape Colony. For the next ten years he devoted himself to dairy farming and sheep rearing. In 1869 he entered the Cape House of Assembly and there continued until 1904, when he was defeated. He was again returned in 1907. One of the most conspicuous figures in the political history of Cape Colony, he first achieved distinction by assaults upon the immoral conduct of the Molteno government, and in 1878, after Molteno was dismissed by Sir Bartle Frere, he became prime minister and colonial secretary, serving until 1881. From 1884 he was treasurer, and from 1886 to 1890 prime minister and treasurer. He served again as treasurer from 1893 to 1896, and as prime minister and treasurer from 1896 to 1898. From 1900-04 he was prime minister and treasurer. He was an ardent Imperialist, and at the conference of colonial prime ministers held in London in 1897 made an offer of a battleship in behalf of the Cape Colony. This offer was afterwards changed into a contribution of £50,000 a year.

SPRINGS, MINERAL. See HYDROTHERAPY; and SARATOGA SPRINGS.

STAFFORD, JOHN ALOYSIUS. An American Roman Catholic priest and educator, died January 21, 1913. Born in 1857, he was educated at St. Vincent's College, Pennsylvania, and at Seton Hall College. For a time he served as assistant in several parishes in New Jersey, and in 1893 was appointed vice-president of Seton Hall College. He served in that capacity until 1899, when he was made pastor of St. Augustine's Church at Union Hill, New Jersey. In 1903 he became president of Seton Hall College. He was made a monsignor by Pope Leo XIII. in the same year. In 1909 he became pastor of St. Patrick's Church, Jersey City.

STANDARD TIME. See ASTRONOMY under section so entitled.

STATE BANKS. According to the report of the Comptroller of the Currency there were on June 4, 1913, 14,011 State banks in the United States with total resources of $4,143,052,000. The principal items of resources were loans and discounts of $2,746,650,000, bonds and other securities of $351,496,000, and cash on hand of $246,341,000. Among the liabilities were included $483,103,000 of capital stock, $285,000,000 of surplus and undivided profits, and $3,081,011,000 of individual deposits. See also the articles on BANKS AND BANKING; FINANCIAL REVIEW; LOAN AND TRUST COMPANIES; and SAVINGS BANKS.

STATISTICS. See VITAL STATISTICS.

STAUFFER, DAVID MCNEELY. An American engineer, author and soldier, died February 5, 1913. Born in 1845, he entered Franklin and Marshall College, but left to serve in the Civil War, becoming commanding officer of the gunboat *Alexandria.*. At the end of the war he studied civil engineering; became division engineer on the Philadelphia and Reading Railway; and in 1870 was made engineer in charge of the construction of the South Street Bridge in Philadelphia. He is said to have been the first American engineer to use a pneumatic process for sinking cast iron columns. In 1874 he became assistant engineer of the Delaware and Boundbrook Railway, and afterwards construction engineer of the Philadelphia water department. In 1879 he built the Dorchester Bay tunnel in Boston. From 1882 to 1896 he was one of the proprietors and the editor of the *Engineering News*

STEAM ENGINES. The tendency towards high speed engines was emphasized during the year 1913 especially in the United States, and there were importations from Europe of prime motors employing the Lentz and the Uniflow principles. The first American locomobile was also installed, which developed an indicated horse power on 9.65 pounds of steam and 1.51 pounds of Holwick coal. In Europe units up to 1000 horse power had been constructed and the economies in space and operation were manifest. The locomobile, it will be recalled, is a self-contained boiler and engine making use of superheated steam with a device for reheating the steam on its way from the high pressure to the low pressure cylinder. American manufacturers of steam engines were beginning to take up in earnest the locomobile, which, originating in Germany, had achieved considerable efficiency and success. One of the typical American locomobiles designed for 225 pounds pressure and constructed in sizes from 75 up to 600 horse power inclusive, had an internal corrugated fire box from which, after traversing the tubes, the gases pass through a special casing to the stack. In this casing the gases give up a large amount of their heat to the superheater and some to the reheater just beyond. The engine was described as of the tandem compound, centre crank type, having the bed plate bolted to a substantial saddle spanning the boiler at the crank end and having a sliding fit on a similar saddle at the crosshead end. Both high and low pressure cylinders have piston valves; but the governor, of the centrifugal-inertia type, controls the engine through the high-pressure valve only, the low-pressure valve working at a fixed point of cut-off and having a hand adjustment feature that is valuable under certain working conditions.

An important hoisting engine, which on the score of rope stress and length of cable, was considered to be the largest ever constructed, was contracted for during the year by the Inverness Railway and Coal Company, of Inverness, Cape Breton Island. It was a Nordberg Corliss duplex double-drum hoisting engine, 34 and 34 by 72 inches, designed to work with a 41,000-pound load on a 10,000-foot incline of 16 degrees at the surface and 35 degrees at the bottom. While not the largest hoisting engine as regards size of cylinders ever built, yet for the points above noted, it was considered a remarkable machine.

STEAMSHIPS. See SHIPBUILDING.

STEAM TURBINE. The steam turbine during the year 1913 continued as the approved prime mover for large units in central stations, but there was little development in the way of applying the turbine to smaller sizes so that it could compete successfully with reciprocating steam engines and with internal combustion motors. While the small sized steam turbine can be used profitably for various auxiliaries, such as pumps and blowers, its field seems sharply defined for units above a certain capacity, just as reciprocating engines and internal combustion engines remain unchallenged for prime movers of less power. During the year, however, the steam turbine advanced in economy due to the use of highly superheated steam gas with superheating between stages, as first outlined by Dr. Ferranti, where he stated that with oil fuel at full load consumption at .55 pounds of fuel for one short horse-power hour a thermal efficiency of 24 per cent. or better, could be secured. His researches indicated the thermal possibilities with a highly superheated steam gas, and further experiments involved a construction in which mechanical difficulties were overcome and the high temperature medium could be satisfactorily used. The result was that the use of highly superheated steam gives the steam turbine an economic position not far below that of the Diesel engine.

The steam turbine unit of 25,000 kilowatts capacity, referred to in the 1912 YEAR BOOK, was installed, and it was reported that four 30,000 kilowatt units and one 35,000 kilowatts capacity had been ordered. A departure from previous designs was to be observed in that these machines were all horizontal instead of the vertical type, as used so extensively at the Fisk Street Station of the Commonwealth Edison Company, of Chicago. Such enormous units have rendered necessary changes in the auxiliaries they require, such as condensers and air pumps, as only by due attention to these adjuncts can the increased economy desired be maintained. Thus, for the 25,000 kilowatt turbine the condenser has 39,000,300 square feet of tube surface and will condense 300,000 pounds of steam per hour, and the air pump was replaced with a kinetic air-ejector, the first one to be installed in the United States. This plant has a feed-water heater with a capacity sufficient for 300,000 pounds of water per hour from a temperature of 65 to 130 degrees Fahrenheit.

The use of the turbine in connection with a reciprocating engine working at low pressure with the exhaust steam of the engine continued, and what is known as a mixed pressure turbine, was developed with sufficient flexibility to meet the varying conditions of central station demand and to increase the advantages accruing from the use of the turbine with reciprocating engine units. These mixed pressure turbines may receive steam directly from the boiler or from the engine exhaust, or from the pump exhaust, so that the thermo dynamic range of all steam employed is extended to the lower limits of the turbine.

STEEL. See IRON AND STEEL, and METALLURGY.

STEEL CORPORATION OF THE UNITED STATES. See UNITED STATES STEEL CORPORATION, and WELFARE WORK.

STEFANSSON, VILHJAHLMR, his explorations. See POLAR EXPLORATION, *Arctic*.

STERLING, THOMAS. United States senator (Republican) from South Dakota. He was born in Fairfield County, O., in 1851. At the age of three years he removed with his parents to McLean County, Ill.; graduated at the Illinois Wesleyan University in 1875; for two years succeeding was superintendent of schools at Bement, Ill.; was admitted to the bar in 1878; and in 1880-81 he was city attorney of Springfield. In 1882 he removed to Spink County, South Dakota. From 1886-88 he was district attorney for this county; he was a member of the constitutional convention of 1889; was elected to the Senate of the State legislature in 1890; was engaged in the practice of law until 1901, when he was appointed dean of the college of law of the State University. He held this position until September, 1911. He was elected to the United States Senate in 1913 to succeed Robert J. Gamble. His term of service expires 1919.

STILLBIRTHS. See VITAL STATISTICS.

STINESS, JOHN HENRY. An American jurist, died September 6, 1913. He was born in Providence, R. I., in 1840, and entered Brown University in 1857. He did not finish his course, but in 1861 entered the Federal army and served throughout the war. The university later conferred upon him the degrees of A.M. and LL.D. He was admitted to the bar in 1865, and engaged in practice at Providence. In 1874-75 he was a member of the State House of Representatives. In the latter year he was appointed an associate justice of the Supreme Court of the State, and served in that position until 1900, when he became chief justice. He resigned from the bench in 1904. From 1897-1907 he was a member of the State Commission of Uniform Legislation, and was chairman of the Rhode Island Commission on the Revision of the Judicial System. He wrote *Two Centuries of Liquor Legislation in Rhode Island* (1882); *History of Lotteries in Rhode Island* (1896); and *Civil Changes in the State* (1897).

STOCK MARKET. See FINANCIAL REVIEW.

STOCK-RAISING AND MEAT PRODUCTION. THE MEAT SUPPLY. The supply of livestock at the five principal cattle markets in the Mississippi Valley consisted approximately of 7,500,000 cattle, 18,500,000 hogs, and 13,000,000 sheep, and represents decreases of about 100,000 cattle, 350,000 hogs, and a gain of 200,000 sheep. (See LEATHER.) The receipts of cattle at Chicago were the smallest for many years. At Kansas City there was a big gain in the number of feeder cattle sold, but this was due to the severe drought in the Southwest. High prices prevailed for cattle early in the year, there being but little spread between feeders and finished steers. Consequently thousands of cattle were finished for market in the corn belt at a loss, for in addition to the high cost of steers and high-priced corn, the price for finished cattle during the last quarter was $2.00 per hundredweight less than a year ago. The dwindling supply of meat animals *per capita* of population, especially in cattle, has brought about a serious situation.

A movement which is spreading rapidly and promises to encourage the livestock industry in the future is the organization of boys' pig clubs and girls' poultry clubs. Another new departure was the holding of a cattle feeders' day at the Kansas Agricultural College, at which there was an attendance of over 500 cattle feeders and stockyard representatives, and which was so successful that it is to be made an annual event. The number of fowls kept in the United States is annually on the increase and laying contests and judicious selection of breeding stock have increased the number of eggs laid per year. At the Oregon experiment station the entire flock averaged 210 eggs per hen; the five best hens averaged 280 eggs each, and one hen laid 303 eggs. The two best layers were crosses between the White Leghorn and the Barred Plymouth Rock breeds.

TRANSPORTATION AND MARKETING OF LIVESTOCK. A study of the shrinkage of live cattle during shipment to market, made by the Federal Department of Agriculture with 265 shipments comprising over 19,000 cattle, showed the net shrinkage to vary from 15 to 75 pounds per head, or 2.14 to 7 per cent. of the live weight. The shrinkage depended upon the length of time, condition at time of shipping, treatment during the drive to the loading pens, length of time held without feed and water and nature of the "fill" before loading. The shrinkage was greater during the first 24 hours than for any succeeding period of the same length.

Approximately 24,556 square miles were declared free from the cattle tick and released from quarantine, making a total of 187,204 square miles since the beginning of the work in 1906. The number of cattle shipped from the quarantined area to northern markets was 1,320,579, an increase of 32 per cent. since 1912.

An elaborate statistical study of the cold storage of fresh beef, mutton, pork, dressed poultry, butter, and eggs, covering the period March, 1909-August, 1911, was made by the Department of Agriculture. The average length of time kept in storage varies each year with each commodity, but for 1909, was as follows: The fresh beef received into storage during the year beginning May, 1909, was kept there on an average 2.28 months; mutton, 4.45 months; fresh pork, 0.88 months; butter, 4.43 months. Poultry and eggs were kept on an average 2.42 and 5.91 months respectively. The cost of keeping these products the average length of time was as follows: Beef, .997 cents per pound; mutton, 1.564 cents; pork, .35 cents; poultry, 1.079 cents; butter, 2.532 cents; and eggs, 3.505 cents per dozen. In round numbers, the estimated amounts put into cold storage were 131,000,000 pounds of beef, 20,000,000 pounds of mutton, 176,000,000 pounds of pork, 157,000,000 pounds of butter, and 10,000,000 cases of eggs.

Meat Imports. Under the tariff which went into effect October 3, 1913, animals imported for breeding purposes were admitted as heretofore free of duty, the duty on live poultry was reduced from 3 cents to 1 cent per pound, and dead poultry from 5 to 2 cents. The duty on other livestock was reduced to 10 per cent. As indicating the immediate effect of the new law, the number of imported cattle inspected by the Bureau of Animal Industry in October and November, was 209,327 head, as compared with 72,420 for the corresponding period of 1912. All came from Canada and Mexico except 447 head of pure-bred cattle, for breeding purposes, imported from Great Britain. The imports were largely for immediate slaughter, and as stockers and feeders. The bulk of the slaughter cattle came from Canada, while Mexico furnished over four-fifths of the stockers and feeders. Imported meats and meat-food products inspected during October amounted to 6,000,735 pounds, and in November to 11,792,576 pounds, making a total of 17,793,311 pounds for the two months. The bulk of this consisted of fresh and refrigerated beef. Of the total meat imported, Canada furnished 8,098,197 pounds; Argentina, 6,209,700 pounds; Australia, 2,725,142 pounds; Uruguay, 559,843 pounds; and other countries much smaller quantities. The imports of fresh beef for a short period before the passage of the tariff act were as follows: 567,205 pounds in June, 642,333 pounds in July, and 824,342 pounds in August.

Meat Inspection. Federal meat inspection was conducted at 510 establishments located in 251 cities and towns, and during the fiscal year 1913, 56,423,312 animals were slaughtered at establishments under Federal supervision. This represents a decrease of 375,000 cattle and 2,700,000 hogs from the figures of 1912. There was, however, an increase in the number of sheep. The number of condemned animals was 47,000 more than the previous year, most of the increase being due to hog cholera, but tuberculosis continued to be the cause of the largest number of condemnations.

On reinspection a total of 18,851,930 pounds of meat and meat-food products was condemned because of having become sour, putrid, unclean, or otherwise unfit for food. For export 90,653 certificates of inspection were issued covering a total of 977,182,936.

The regulations of the Department of Agriculture to govern the importation of meat under the new tariff act provide for anti-mortem and post-mortem inspection in the countries where slaughtered. It is also subject to inspection in this country.

Horses. There was a very active trade in draft horses during the year. Many high prices were paid for high-class draft stallions. The work in breeding army horses by the government had been organized in two districts and 34 stallions purchased. A national horse-breeding association was formed to develop a strain of American horses by using selected Arabian stallions for crossing with American stock. There were 13 States which disqualified unsound stallions for public service, and although these laws did much to prevent undesirable animals from breeding, they accomplished less than was expected, owing to unscrupulous stallion owners and weaknesses in the laws. Because dourine had been introduced into the United States through the importation of horses for breeding purposes, greater restrictions were placed upon the entry of pure-bred horses.

Livestock in Foreign Countries. The dwindling meat supply of the United States and the loss of foreign markets compelled the American packers to erect packing plants in Argentina which sent to Europe in 1901 only 25,000 quarters of chilled beef. In 1913 shipments increased to about 2,300,000 quarters, thus supplying the deficiency from the United States. Argentina bred in 1913 about 29,000,000 head of cattle, a small number compared with what can be kept there. The official statistics for Canada showed that during the year 1913, a large increase in the number of pigs and small increases in other kinds of livestock had occurred. England and the continent were suffering from a shortage of meat animals, due to the butchering of breeding stock and the increase in population.

In Germany there was a steady decrease in the number of cattle, swine, sheep, and goats since 1907, but a slight increase in other kinds of livestock. In Hungary the latest census returns showed a decrease in all kinds of domestic animals except swine. The number of cattle in Sweden was on the increase since 1865, but since 1895 not so fast as the increase in population. The dairy and poultry industries made remarkable strides in Russia and Siberia for a number of years. In 1913 both butter and eggs were exported from Siberia to the United States. In Australia the government was taking steps to take charge of slaughtering, freezing, and selling of meat and animal products in order to prevent the control of the business by the meat trust.

WOOL. The number of sheep in Australia fell off to the extent of nearly 10,000,000 head from a year ago, due to a drought and a heavy mortality. The wool clip decreased to 749,997,291 pounds, but in spite of this loss the high price made the value of the clip more than that of 1912. About 69 per cent. of this wool was merino and the rest cross bred. There was also a considerable shrinkage in the American clip, and though trade in wool was quiet for a long time because of the tariff discussion, the shortage became apparent in December and at the close of the year trade in fine raw wool was unusually brisk. The price for fine scoured wools was 12 cents per pound less than in 1912 and represents the full effect of the tariff. Only a small part of the wool put in bond awaiting tariff reduction was of the finer grades.

LITERATURE. Among the more important publications of the year were the following: Will C. Barnes, *Western Grazing Grounds and Forest Ranges* (Chicago); F. T. Barton, *Cattle, Sheep and Pigs* (London); J. T. Craig, *Sheep Farming in North America* (New York); Geo. E. Day, *Productive Swine Husbandry* (Philadelphia); W. S. Dixon, *The Complete Horseman* (London); C. and A. Douglas, *The Shetland Pony* (London and Edinburgh); P. B. Hadley, *Studies on Inheritance in Poultry* (R. I. Experiment Station Bulletin 155, Kingston, R. I.); G. K. Holmes, *Cold Storage Business Features* (U. S. Department of Agriculture, Bureau of Statistics Bulletin 93); *Cold Storage and Prices* (U. S. Department of Agriculture, Bureau of Statistics Bulletin 101); and George Woodward, *The International Poultry Book* (Ballarat, Victoria, Australia).

STOKES, ANSON PHELPS. An American banker and philanthropist, died June 28, 1913. He was born in New York City in 1838 and was educated by tutors and in private schools in New York City. He became a member of the firm of Phelps, Dodge, and Company, merchants, and was later connected with many other important financial companies and institutions in New York City. He was a pioneer in civil service reform, the first president of the Reform Club of New York City, and was at one time the vice-president of the Civil Service Reform Association. He was the author of *Joint-Metallism* (1894-96); *Cruising in the West Indies* (1902); *and Cruising in the Caribbean with a Camera* (1903).

STORAGE BATTERIES. See ELECTRIC BATTERIES.

STRAITS SETTLEMENTS. A British Malaysian crown colony composed as follows: Singapore, 217 square miles; with its dependencies—the Cocos (or Keeling) Islands, about 20 in number (no definite area given); Christmas Island, about 62 square miles; Labuan, 28½ square miles (total population of Singapore and dependencies, census of 1911, 311,985). Penang, 108 square miles; with province Wellesley, about 280 square miles; and the Dindings, about 183 square miles (total population, 278,003). Malacca, 720 square miles (population, 124,081). Total area, between 1600 and 1650 square miles; total population, 714,069. Chief town of Singapore, Singapore; of Penang, George Town; Malacca, Malacca. Capital of the colony, Singapore. The ports are free. The trade is chiefly transit, the only articles produced for export in the colony being tapioca, rice, rubber, sugar, and coal (from Labuan; 86,689 tons in 1910). The table below shows trade and finance statistics in Straits Settlements dollars and shipping in tons entered and cleared:

	1909	1910	1911
Imports	313,358,427	364,470,653	398,034,421
Exports	281,183,021	324,189,786	341,889,822
Revenue	8,795,001	9,336,328	11,409,221
Expenditure.....	8,542,731	7,532,242	9,085,389
Shipping	22,192,354	23,429,495	24,086,904

The railways are operated by the government of the Federated Malay States (q.v.). Sir Arthur Henderson Young (appointed 1911) was governor in 1913.

STRANFA. See CHEMISTRY, INDUSTRIAL, under *Jute Substitutes*.

STREET, T. GEORGE. See POLAR EXPLORATION, *Arctic*.

STREET RAILWAYS. See MUNICIPAL GOVERNMENT.

STREPTOCOCCUS. See MILK.

STRIKE, GENERAL. See ARBITRATION AND CONCILIATION; BELGIUM; and STRIKES.

STRIKES. See also ARBITRATION AND CONCILIATION. As in the immediately preceding years there was a great amount of labor unrest in all western nations. While there were no strikes as spectacular as that of the British coal miners of 1912, there were a great number of them, and some were marked by unusual bitterness and violence. In all probability the fundamental cause of these disturbances was the rising cost of living. During a period of rising prices wages as a rule rise more slowly than the cost of customary articles of consumption. Moreover, employers do not as a rule advance wages during normal times without considerable pressure from the workers themselves. According to *Bradstreet's*, the strikes of the first eleven months of 1913 involved about 400,000 persons. For an entire preceding year numbers involved were as follows: 1912, 475,000; 1911, 255,000; 1910, 550,000; 1909, 223,000; 1908, 230,000; 1907, 175,000; 1906, 550,000; and 1903, 650,000. Space permits the description of only a few of the more significant strikes of the year.

CALUMET COPPER MINERS. On July 23 about twenty copper mines of the Keweenaw Peninsula, Michigan, were closed by a strike called by the Western Federation of Miners. This was the first serious dispute in fifty years. Nearly 15,000 men were idle, but only a portion of these were members of the federation. Thirty-eight nationalities were represented among them, a very large proportion being Finns. The miners demanded the recognition of the federation, either the complete removal of one-man drills or the placing of two men on each drill, a minimum wage of $3 for trammers and $3.50 for miners, and an eight-hour day. These demands, however, were formulated only after the operators had scornfully refused a request for a conference to discuss conditions. Within a few days after the strike began the governor of Michigan sent 2700 militia to the scene. In addition the companies employed from a detective agency a considerable number of guards, called by the miners, "gun-men." Here, as in West Virginia, these mercenaries, profiting by aggravating disorder, were a chief cause of extremely tense feeling. Their outrages, especially the wanton murder of two innocent persons because an Austrian miner had used a path across company land, led to retaliation and an increasing use of firearms by both sides. The main point at issue was the recognition of the union. The Western Federation, which is the only union among metal miners in this country, was strongly supported by the American Federation of Labor and by other labor organizations. The United Mine Workers sent $100,000 to support the strike and other bodies made assessments for the same purpose. Prominent labor leaders, such as John Mitchell, John B. Lennon, and T. L. Lewis, went to the scene to give encouragement. The operators and owners, however, resisted every effort at mediation. Governor Ferris offered to arrange a joint conference. This being refused he sent Judge Murphy to work out a plan of settlement. The Copper Country Commercial Club also investigated with a view to an adjustment of differences; but the union refused their advances because the club had condemned the union in advance. The main effort was made by John A. Moffit, sent by Secretary of Labor Wilson. He proposed arbitration of all matters except recognition of the federation. The union accepted but the managers rejected this plan. A similar fate met a like proposal from the president of the Michigan Federation of Labor. Efforts to persuade leading officials of the Calumet and Hecla Company at Boston to meet their miners failed, the officials declaring that the men might return individually but that the union would be resisted to the last degree. On November 28 the managers announced that they would on December 1 introduce the eight-hour shift into all shafts, except those on a contract basis, and would set aside Tuesday afternoon each week for the hearing of grievances. On the afternoon of December 24 a panic occurred at a Christmas celebration in Italian Hall at Calumet, 72 lives being lost following a cry of "Fire." It was thought that this calamity would prepare the way for settlement but resentment seemed to be only intensified. Bad feeling was further aggravated when the stricken miners refused the proffered aid of $25,000 from citizens. On December 28 President Moyer of the Western Federation was beaten, shot, and forcibly ejected from the strike zone. Though the companies gave the men until January 1 to resume their places it was evident that the strike would continue into 1914.

Colorado. Of almost equal importance with the miners' strikes at Calumet, Mich., and in West Virginia, was that of the coal miners in southern Colorado. This began on September 23, and continued into the new year. Preceding the strike, representatives of the miners sent a letter to the operators requesting a conference. This and subsequent ones were ignored. Between 75 and 85 per cent. of the miners went out. After a few days of peace, friction, due in large part to outsiders and to the mercenary guards employed by the companies, led to considerable violence. The governor ordered militia to the scene on October 28. He also endeavored to secure a settlement, but his advances were rejected by the operators. To understand the demands of the miners it is necessary to state certain provisions of the Colorado laws. These prohibit any attempt to prevent the organization of workers; they prohibit payment of wages in script, or anything but lawful money; they require operators to provide check-weighmen to pay wages twice per month, and to operate on an eight-hour-day basis; and they guarantee to employes freedom to trade elsewhere than at company stores. There was much evidence to show that the coal-mining companies had ignored these provisions. Congressman Keeting, who introduced a resolution in Congress for a Federal investigation, said, "For more than ten years the coal companies have owned every official in both Las Animas and Huerfano Counties. Administration of the law has been a farce. As an example: Hundreds of men have been killed in the southern Colorado mines during these ten years, yet no coroner's jury, except in one case, has returned a verdict holding the companies responsible, the blame being placed on the dead miner." The deputy labor commissioner and chief factory inspector of Colorado and numerous others similarly declared that the laws have been violated continually. The miners' demands included the enforcement of the mining laws, particularly those above enumerated, a readjustment of the wage scale, and union contracts. They contended that the individual miner must continue to be helpless unless he can secure the backing of a strong union. On November 26 a conference of operators and strikers led by the governor and Federal Secretary of Labor Wilson, adjourned without reaching an agreement. Just previous to this, numerous editors of the State had met at Denver and proposed a plan of settlement. This was rejected by the miners on the ground that it did not provide for union contracts. On December 1, President White, of the United Mine Workers, the vice-president, and secretary of the same union, a labor editor of Trinidad, and five others were indicted at Pueblo for conspiracy in restraint of trade. The Federal grand jury made a report in December criticizing both operators and miners in very severe terms.

West Virginia. The most bitter labor war of the year, and one of the most prolonged in American history, was that centering in the Cabin Creek and Paint Creek collieries of the Kanawha Valley of West Virginia. Bad feeling had been engendered by many years of brutal treatment; open hostilities were begun in the spring of 1912. Company stores and other points of advantage were equipped with machine guns; the mine guards, who had been a chief cause of the bitter hatred of the miners, were increased in numbers; and the miners themselves smuggled in arms and ammunition. In August Governor Glasscock called out the militia; and martial law was in force almost continuously, until the summer of 1913. Great numbers of guns and quantities of ammunition were confiscated from both guards and miners. Nevertheless, so intense was the feeling that excesses by both sides were frequently committed and thirteen men were killed.

The principal demands of the miners were: The recognition of the union; freedom to trade at other than company stores; payment of wages in cash instead of credit script good at the stores; a weighing system at the mines and payment on the basis of the short ton; a nine-hour day; and better housing. The strikers were supported financially by the United Mine Workers, and by operators in competing fields already unionized. This support alone enabled them to keep up the fight. Temporary settlements were reached in April through the intervention of Governor Hatfield, but agreements were not signed until July. Practically all the strikers' demands were granted. Not only did they win a 12 per cent. increase in pay, through a change from the long to the short ton, but they gained the nine-hour day, semi-monthly pay, the right to employ one of their own number as a check-weighman, and the privilege of trading where they pleased. They also secured the introduction of the check-off system, whereby the union dues are deducted from pay by the company and turned over to union officials.

The money cost of this struggle according to *Coal Age* was as follows: Operators' loss in business, $2,000,000; cost to State of militia, $400,000; cost to Kanawha County for civil, police, and the criminal expenses, $100,000; cost to the United Mine Workers, and paid by union miners of Illinois, Ohio, Indiana, and Pennsylvania, $602,000; property destroyed, $20,000. These, with other costs, totaled $4,612,000.

In May the United States Senate provided for an investigation of the entire situation. A Senate committee of three was authorized to inquire whether or not peonage existed in the coal fields; whether or not the postal facilities had been interfered with or the immigration laws violated; whether citizens had been arrested, tried, and convicted contrary to the laws of the United States; and the causes of the industrial war. It held hearings in June at Charleston, which is only about twenty miles from the disturbed area.

PATERSON. One of the most spectacular and significant strikes of the year was that of the silk workers of Paterson, N. J. Their strike began February 25. About 27,000 employes were out, including broad silk weavers, ribbon workers, and dye-house workers. The weavers struck primarily because of the introduction of the three- and four-loom system. Previously a weaver had tended two looms and made fine silks. They feared that an increased employment of women and children on looms making coarse silks would throw thousands of skilled weavers out of work and lower family standards. Other workers demanded an eight-hour day and minimum wages of $12 a week. Organizers of the Industrial Workers of the World (q.v.) were early on the scene and about 10,000 of the strikers joined that organization. Although the strikers embraced many nationalities, here, as in other similar strikes led by the I. W. W., great solidarity of purpose prevailed. From the beginning most unreasoning hostility to William D. Heywood, Patrick Quinlan, Carlo Tresca, and Elizabeth Flynn, I. W. W. leaders, was manifested. In March, Heywood and Lessig were arrested and sentenced by the local recorder's court to six months in jail for unlawful assemblage. On April 5 they were released by order of Justice Minturn of the Supreme Court, who declared that he could find no evidence even of any assemblage having been held at the time charged. There were more than one thousand arrests of strikers, including many women; many fines and some jail sentences were imposed; yet by common consent the strike was peaceful, not a single weapon being found on any arrested striker and there being not a single case of assault on a "scab." Nevertheless the leaders were repeatedly arrested on trumped-up charges; personal rights and freedom of the press were interfered with. Alexander Scott, editor of a Socialist paper, was convicted of "hostility to government" and sentenced to one to fifteen years. Strikers were greatly angered by the arrest and conviction of Patrick Quinlan. The jury disagreed in his first trial, but he was found guilty on the second, about March 15, of inciting to riot. Believing a fair trial in Passaic County impossible Justice Minturn on May 22 ordered the drawing of a jury from outside that county to hear other cases against strike leaders. Following the conviction of Scott a petition signed by 29 social workers of New York was sent to President Wilson calling for a Federal investigation of conditions at Paterson. On June 7, in Madison Square Garden, New York City, thousands of strikers participated in a monster demonstration. The strike was concluded in July when nine-tenths of the strikers had returned to work. Their total loss in wages was estimated at $5,000,000. Early in October Mr. Frederick S. Boyd of New York was convicted of having advocated sabotage at Paterson and was sentenced to one to seven years in the penitentiary and a fine of $500. The case was appealed. On November 10 Justice Bergen of the Supreme Court set aside the conviction of Heywood, Tresca, and Lessig, who had been sentenced to six months. In November occurred a second outbreak of formidable size among the ribbon weavers; but other branches failed to go out in support and the strike collapsed.

CINCINNATI ICEMEN. During three very hot weeks in July the drivers, helpers, engineers, and firemen of the Cincinnati ice companies were on strike. They demanded higher wages and recognition of a newly-formed union. Efforts of the mayor and others to bring about arbitration failing, they first secured a small supply of ice from a brewery and distributed it by the aid of the street cars and the fire-engine houses. Then somewhat larger amounts were secured by rail shipments; but this supply soon dwindled because outside dealers began to cancel agreements. It was claimed that all these dealers were in a combination known as the Middle States Ice Producers' Exchange, charged by Mayor Hunt with violating the Sherman anti-trust law. In the fall the Federal Department of Justice began an investigation of this combination. The next important step in the strike was the seizure by the city of eight of the largest ice plants under orders of the board of health. The plants were then operated by the city for eleven to thirteen days. Ice was sold at much less than company prices. This unique strike raised the question of arbitration and municipal ownership in new forms.

CINCINNATI TRACTION. On May 9 began a ten-day strike of the 1800 employes on the street railway system of Cincinnati. The men's principal demand was recognition of the union. The company was finally forced to grant this demand by the determined resistance of the strikers, and more especially by the institution by Mayor Hunt of a suit asking for a receivership for the company. The ground for this suit was that the company having evidently failed to operate its cars according to schedule, had violated its charter and forfeited its rights in the streets of the city. When the union was recognized and an agreement made to arbitrate other differences, this suit was withdrawn. The other demands of the men were: A work day of ten consecutive hours; payment of at least half wages to extra men who spend from four to seven hours a day waiting for runs; and a higher wage scale.

NEEDLE TRADES OF NEW YORK CITY. The memorable strikes of the shirtwaist makers and the cloakmakers in 1910 stimulated unrest in other branches of the ready-made clothing industry. On December 30, 1912, nearly all the unions in the various branches of men's tailoring went on strike. They were followed on January 5 and 6 by the workers on ladies' waists, dresses, kimonos, and wrappers, and on January 9, 10, and 15 by the underwear or white-goods workers. More than 100,000 persons were involved, most of them affiliated with the United Garment Workers of America or the International Ladies' Garment Workers. There was some disorder and during the two-months' strike many fines were imposed on both men and women strikers, and some men were sent to the workhouse.

The men's tailors demanded the following: Abolition of the subcontracting system; abolition of foot power; that no work be given out to be done in tenement houses; time and one-half for overtime and double time for holidays; a 48-hour week; a general increase of 20 per cent. in wages; and the adoption of a wage scale giving $25, $22, and $16 per week respectively to first-, second-, and third-class operators, $24, $21, and $17 per week respectively to first-, second-, and third-class tailors, $24 and $18 per week to pressers, and $12 and $10 to women and children. From the first there was not much favor among this branch of the strikers for the protocol agreement whereby the 1910 strike of the Cloak, Skirt, and Suit Makers' Union had been settled. (See ARBITRATION AND CONCILIATION, INDUSTRIAL.) The New York Clothing Trade Association, representing the strongest section of the employers, declared firmly that it would not recognize any unions and would not agree to the preferential union shop. On February 28 the strike was declared off. Meanwhile about 20,000 strikers had returned to work under individual shop agreements. The remainder of the strikers returned under the following conditions drawn up by Mr. Marcus M. Marks: The question of hours to be submitted to an arbitration committee whose award shall be binding; week-workers in tailor shops to receive an advance of $1 per week and piece-workers to receive a proportionate advance; no wage reductions in dull seasons; all sub-contracting to be abolished in both contracting and inside shops; sanitary conditions to be maintained; contract shops to maintain same conditions and hours as inside shops.

The shirtwaist-makers had been out in the great strike of 1910 with a union numbering 40,000. But unlike the cloak and suit-makers they did not secure such an agreement as insured peace. But they were the first to reach a settlement in 1913 and that on the basis of a protocol similar to that secured by their fellow-workers in 1910. This new agreement, known as the "white" protocol, provided for the preferential union shop; for a board of grievances to which disputes are to be taken in the first instance and from which appeal may be made to a board of arbitration; for a joint board of sanitary control, which began by adopting the sanitary standards devised by the like board in the cloak, suit, and skirt trade; for the adoption of a white label as a means of appealing to consumers; for a wage-scale board for the permanent adjustment of wages on the basis of living standards and efficiency; for a maximum week of 50 hours; and for the abolition of sub-contracting. The agreement also fixed a temporary week-wages scale; established a piece-wage committee; and provided that, pending rulings by the wage-scale board, no week-worker not an apprentice should receive less than $8 per week and no piece-worker less than 30 cents an hour. Most of the distinguished men serving on the boards of the suit and cloak industry consented to serve in like capacity on these new boards. (See ARBITRATION AND CONCILIATION, INDUSTRIAL.)

Near the close of February the other two branches of the ladies' wear industry, namely, the kimono and wrapper, and the white-goods or underwear trades reached agreements. The white-goods workers numbered nearly 20,000, fully 95 per cent. women, and of Jewish, American, Italian, and Slavic descent. Investigation showed that seasonal fluctuations were most extreme; less than 10 per cent. were employed throughout the year; of 7123 workers employed in about 120 of the shops, only 20 per cent. were employed in July and August, 75 to 80 per cent. September and October, over 90 per cent. in December, 80 per cent. in January, 90 per cent. again in February and March, and thereafter a gradual drop to 80 per cent. in May and 40 to 60 per cent. in June. With this intermittent unemployment were coupled wages averaging $5 or less per week for one-third of the employes, and between $5.50 and $7 for another one-third. The protocol in this branch provided grievance and arbitration boards but no sanitary board; pledged the manufacturers to maintain safe and sanitary conditions; required the manufacturers to register with the union the names of contractors to whom work is sent; prohibited the sending out of work to tenements after six months; established a minimum wage of $5 a week; created a permanent wage board to standardize piece prices and fix week wages; and set the hours per week at fifty.

The kimono-workers secured a less favorable agreement, especially the 2000 of the East Side branch. These were very young girls, recent immigrants, largely Spanish Jews from Russia and the Balkan States. The West Side branch was composed of 3000 older workers more experienced in American labor disputes. Their agreement provided for grievance and arbitration boards and sanitation committees. The West Side protocol provided that standard union conditions should prevail within a radius of twenty-four miles of New York in shops of association members and their outside contractors. Moreover, manufacturers signing the agreement must assist the union to establish union conditions beyond the twenty-five-mile limit by refusing to send out goods to any shop where the union might call a strike.

Southern Pacific. After six months of futile negotiations to settle differences, about 4000 conductors, engineers, firemen, and trainmen of the Sunset Division of the Southern Pacific Railroad quit work on November 13. All freight and nearly all passenger traffic between New Orleans and El Paso, Tex., was brought to a standstill. The road had already provided a thousand strike breakers, and their examination to determine fitness was at once begun. The most serious aspect of the situation was the danger of losses to the sugar-cane and rice growers. Both crops were being harvested, and, while the latter could be stored with comparative ease, the former would have been ruined by frost and the lack of immediate transportation to sugar mills. The union officials declared themselves strongly opposed to violence of any sort, but nevertheless there was some intimidation and some destruction of property.

The employes had drawn up a list of sixty-seven complaints. These included demands for the reinstatement of engineers and others discharged in alleged violation of contracts; complaint of excessive demerits and of harsh letters from subordinate officials; opposition to the number of reports required outside of company time; request for regulation of lay-overs at terminals away from home; demand that officials should confer with local union committee in making assignments of men to new runs; demand that passenger rates be paid for motor car service; protest against physicial reëxaminations and against reëxaminations on rules. Chairman Julius Kruttschnitt of the executive committee of the road declared that the unions had refused proposals to arbitrate. He said the main question involved from the road's point of view was whether it should secure peace with the men at the price of safety to the public. He stated the willingness of the road to confer with a committee from the four unions regarding a new system of settling grievances, or to have all matters in dispute arbitrated as provided by act of Congress.

Indianapolis Street Railways. On November 1 the entire street railway system of Indianapolis was tied up by a very determined strike by a newly organized union. The company at once imported about 400 strike breakers, but their appearance was attended by such violence that for six days no cars were run. In the rioting four persons were killed and many injured. The local police refused to aid the company, thirty of them resigning when ordered to protect strike breakers. The sheriff summoned 200 citizens to act as deputies but most of them refused; it was charged that nearly all those summoned were Republicans, the sheriff being a Democrat and election being at hand. The mayor appealed to Governor Samuel M. Ralston for assistance in maintaining order, but the governor at first refused on the ground that the citizens had not done their duty. On November 5, however, he ordered the entire National Guard of Indiana, numbering about 1800, to the scene. Suit was brought by a local attorney for the annulment of the company's franchise. Finally on the 7th, Mr. Ethelbert Stewart, representing the National Department of Labor, aided by the governor, induced the company to submit the union demands for higher wages and shorter hours, but not the demand for recognition, to the State public utilities commission. Traffic was resumed the next day. The bitter feeling engendered by the strike led to fierce denunciation of Mayor Samuel L. Shank by a committee of the Chamber of Commerce. This feeling was not lessened by acquittal of the disobedient policemen. Mayor Shank finally resigned November 28, because of his inability to prevent the teamsters' strike.

Indianapolis Teamsters. On November 30 the teamsters of the city to the number of over 3000 went on strike. In a street riot on December 2 one man was killed and four wounded by special officers. On December 6 about one-third of the strikers returned to work, demands having been conceded.

General Electric Company. Late in November, occurred a strike of 14,000 employes of this company at Schenectady. The company had followed the policy during slack periods of laying off some workers and employing others at full time. The employes demanded the employment of all at part time. A settlement was effected by a conference brought about by Mayor Lunn. The company agreed to take back all workers on part time; but those workers whose lay-off caused the strike and whose reinstatement was the direct issue were taken on in other departments than those they had previously worked in.

Great Britain. The year passed in Great Britain without any strikes attracting world-wide attention, except that at Dublin described below. There were, however, a multitude of small strikes, only a few of which are here noted. On January 1 the London taxicab drivers struck against the increase from sixteen to twenty-six cents charged by employers for gasoline. The men were closely organized, and were supported by independent drivers. On March 18 an agreement was made to leave the price of gasoline at the old price of sixteen cents and to dismiss drivers who had worked during the strike. About 6000 men were affected. The Journeymen Bakers' Amalgamated Union demanded a limitation of hours and a minimum wage of $7.50 or $8.00 per week for factory or private baking houses respectively. They planned to strike March 15, but a few days earlier settlement was reached whereby demands were granted, except that sixty hours per week were allowed in private establishments. At the same time foreign bakers, known as Vienna bread bakers and formed into an international union, put forward a demand for a minimum wage of $8.50. In March also the cooks and allied kitchen workers in London hotels and restaurants demanded a weekly half holiday. Like the foreign bakers they adopted a method known as the "lightning" strike. The demand of the union was presented just before an important bake or immediately preceding dinners when important banquets were about to be served. Their demands were generally conceded. In the spring serious trouble was only narrowly averted on the Great Northern Railway. Owing to the discharge of an engine driver indignation meetings were held by the Union Railway men. The company yielded.

A unique movement was the organization of British farm laborers. Several fairly extensive unions were formed. It was reported that these farm workers labored from daybreak to sunset for weekly wages under five dollars. Moreover, their living conditions were found to be very degrading. In the early summer the National Agricultural Laborers' Union of Lancashire put forward a demand for a twelve-hour day with extra pay for overtime, a Saturday half holiday, a minimum wage of six dollars a week, and recognition of the union. There resulted various clashes with the police and a great interruption in the traffic in farm produce destined for Liverpool. Owing to a projected visit of the king every effort was made to bring about a settlement in July. The farmers as a rule conceded the demands.

Another notable strike was that of some 40,000 unskilled workers in the engineering shops and iron works in and around Birmingham. Their modest demand was for a minimum wage of $5.75 a week. The strike was attended by great suffering, generally borne heroically. On July 11 the strike was terminated successfully. About the middle of July an extensive strike in the shipbuilding yards of the country was threatened, but was averted by the employers conceding one-half the increase in pay demanded. Eleven trades altogether were concerned. About the end of August there was a strike of organized painters and decorators in London for an increase of wages. Their demand was generally conceded. In October British railway men were again thrown into a state of discontent owing to the imprisonment of engine driver Candell for manslaughter in connection with a wreck in which sixteen lives were lost. The workers looked upon him as a victim of circumstances, holding that the real criminals were higher up. On November 1, the government granted him a full pardon.

Dublin. Late in August as the result of fiery speeches by James Larkin and other leaders a threatened strike by the Transport Workers' Union of Dublin was met by a lockout. Just previously five of the leaders had been arrested on a charge of seditious libel and conspiracy. While the principal trades affected were those handling the shipping trade and the street cars, thousands of other workers were soon thrown out of employment. It was estimated that the total number made idle reached 30,000. The dispute soon developed into a very stubborn resistance of the employers to the union and of the union for recognition and complete reinstatement of all strikers. The lack of adequate strike funds resulted in great privation and suffering. On September 27 a ship with $27,000 worth of food arrived in Dublin from English trade unions. Several other loads followed. By September 1 the contributions of the English unions had reached a total of £70,000 ($350,000), and were being made at the rate of several thousand dollars per week. Early in December at a conference of English labor leaders it was decided to continue this policy of financial aid rather than to adopt the method of a general sympathetic strike to assist the Dublin workers. The strike was attended at various times by much rioting; thus on August 31 a police attack upon a crowd cheering Larkin resulted in one killed and 500 sufficiently injured to require hospital treatment. The sentencing of Larkin to seven months' imprisonment greatly intensified the feelings of the workers in both Great Britain and Ireland. Being released on bond, Larkin made a series of speeches in England in which he threatened to arouse the entire working population to revolutionary and violent resistance to existing conditions. By the middle of December employers had yielded sufficiently to grant employes permission to join the Transport Workers' Union. The only issue then remaining was whether all or a part of the members of that Union should be reinstated in their employments.

Italy. On August 3 a general strike began at Milan, Italy. This had been preceded by various labor disturbances, particularly among the metal workers and the street railway employes. Within a few days the strike had spread to a great variety of employments, it being estimated that 150,000 men were out in Lombardy and Piedmont. Milan and vicinity were practically placed under martial law, the garrison being increased to 30,000 troops and the police forces being extended. Following a meeting of 50,000 strikers on August 10, it was determined to call a general strike throughout Italy. Such an order was issued the next day from the Socialist and Syndicalist workmen's headquarters at Milan. There resulted a temporary but rather complete tie-up at Pisa and considerable disturbance at Rome and Genoa. This nation-wide strike, however, was a failure. In the Milan district several deaths, nearly 200 wounded, and over 2500 arrests were reported. By August 15 work had been resumed even at Milan in most industries, and negotiations under government auspices were proceeding to determine a basis for settlement.

Spain. Early in August the Spanish Federation of Labor called a general strike at Barcelona. The government at once proclaimed martial law in the city. The number out on strike was estimated at 30,000 to 90,000 and 337 factories were closed. Newspapers were ordered to suspend publication. Machine guns were mounted in streets and factories. Sympathetic disturbances occurred in Madrid and other places. The government endeavored to settle the dispute by a committee of arbitration; and introduced a bill into the Cortes to remedy some of the grievances, particularly those arising from the employment of women and children.

South Africa. In the early days of July occurred a most violent strike of the Rand miners. This was due mainly to a demand for an eight-hour day; but in addition the miners demanded the right of free speech, press and public meeting, better compensation for men suffering from tuberculosis, an annual ten-days' vacation, recognition of their union, and a share in the appointment of mine inspectors. The miners numbered 25,000, of whom one-half were white underground workers. They resorted to revolutionary tactics, tearing down the Union Jack and hoisting the red flag. Johannesburg, which was the centre of the disturbance, was thrown into a state of anarchy. A clash between troops and strikers resulted in the killing of many, including a considerable number of women and children. A statement was reached after a few days through the intervention of General Botha, the ex-premier, and General Smuts, minister of mines. It was agreed that all strikers should be reinstated and that there should be no victimization. The government was then to make an investigation. Important political consequences followed the use of the troops, the governor-general of the Union of South Africa, Viscount Gladstone, being roundly denounced by labor leaders, and in the British House of Commons.

Equally important with the foregoing was the strike of the Hindus in Natal. This centred at Ladysmith, where considerable rioting occurred. Aroused by rumors that Hindus in coal mines had been flogged to death or shot, a thousand East Indian miners near Ladysmith quit work in November and marched into the city. The agitation spread and soon the vast majority of the 140,000 Hindus and other Asiatics in Natal were on strike. Great alarm was felt for the safety of women and children, and great loss resulted to the sugar-cane crop, which was then ready for harvest. Sugar plantations near Durban were burned. The strike spread as far as the South Coast, with the result that farms, railroads, sugar and tea plantations, mines, mechanical trades, and domestic service were seriously interfered with. While extra police safeguards were instituted martial law was not declared. The strike was conducted mainly by the method of passive resistance. Nevertheless a number of Hindus were killed and many wounded. Behind this strike was a general feeling of discontent due to political disabilities from which the Hindus suffer in South Africa. They are forbidden to migrate from one province to another and yet they are subjected to a poll tax of $15. Moreover the South African law prohibits not only the importation of polygamous wives, but of any wife married by the rights of a religion permitting polygamy. See SOUTH AFRICA, UNION OF, *History*.

STRUCTURAL BRIDGE AND IRON WORKERS. See TRADE UNIONS.

SUBMARINE. See NAVAL PROGRESS.

SUBWAYS. See RAPID TRANSIT.

SUDAN, THE ANGLO-EGYPTIAN. A country in Africa, south of Egypt, under the joint administration of the British and the Egyptian governments. It extends westward from the Red Sea, Eritrea, and Abyssinia to Wadai, and southward from Egypt to Uganda and the Belgian Congo. Area, 984,520 sq. miles, carrying a population estimated in 1911 at 3,000,000. Khartum with (1909) 18,235 inhabitants is the capital. Opposite the capital, on the Blue Nile, is Khartum North, with 35,285 inhabitants. Omdurman, on the White Nile, the former Mahdist capital, has 42,779. An increasing number of West African tribes are settling in the Sudan and as they are hard-working and law-abiding their advent is regarded with favor. Vernacular and industrial schools have increased in number, but are still insufficient. An agricultural school is needed. The natives are being educated in modern methods and show great aptitude. It is proposed to develop irrigation in the Dongola province and in the region between the Rahad and Dinder rivers. The 1912 Nile flood was the lowest on record in many years. Under cultivation in 1911 were 1,426,497 feddans, of which 116,556 were artificially irrigated, 1,192,265 under main crops, and 117,676 irrigated by the river at flood. The protection of gum forests is being urged, and arrangements have been made for the exploitation of hitherto undeveloped products, among which are wild fibres and floss and divers sorts of Sudan beans. The total imports were valued in 1912 at £E1,338,791, and in 1911 at £E2,561,238; exports in 1912 £E1,918,243 and in 1911 £E1,505,277. These figures include specie. Dura (African millet) was exported in 1911 to the value of £E86,657; cattle, £E129,375; sheep and goats, £E86,606; gums, £E435,622; cotton, £E195,840; ivory, £E73,932. The revenue for 1911 amounted to £E1,305,000; 1912, £E1,375,000; 1913 budget, £E1,631,000. Expenditure 1911, £E1,350,000; 1912, £E1,538,000; 1913 budget, £E1,631,000. There were about 1500 miles of railway in operation in 1911. The El Obeid extension was opened to traffic in 1912. A line from Kassala to a point of junction on the Red Sea line is under consideration. South of Khartum communication is established by boats on the Blue Nile, the White Nile, Sobat, and Bahr-el-Ghazal; inland, mainly by camels and donkeys. Gen. Sir F. Reginald Wingate continued in 1913 as governor-general of the Sudan and sirdar of the Egyptian army.

Punitive expeditions were undertaken in 1912 against the Beirs and the Anuaks. The results were a check to the extension of the traffic in arms carried on across the Abyssinian frontier by the latter tribe, and their submission to the administration.

SUFFRAGETTES. See GREAT BRITAIN, *History*, section *Suffragists and the Franchise Bill*, and *History, passim;* the section *Legislation* under various States of the United States; the section *History* under various countries; and WOMAN SUFFRAGE.

SUFFRAGISTS. See SUFFRAGETTES.

SUGAR. In 1913 the sugar beet crop for sugar making in the United States was the largest ever produced, and exceeded by 34½ per cent. the average for the previous five years. The beet sugar yield of the crop was estimated by the United States Department of Agriculture at about 727,000 tons, and by Willett and Gray at 640,000 tons. The cane sugar crop of Louisiana and Texas was placed by the latter authority at 267,000 tons. The value of the products of these two sugar industries, including the by-products, was placed at about $119,000,000. The sugar crop of the world for the year 1913-14 was estimated by Willett and Gray (December 24) at 18,923,514 tons, an increase of 779,077 tons. The total beet sugar crop of Europe was estimated by F. O. Licht at 8,475,000 tons, as compared with 8,342,000 tons in 1912-13. The production of cane sugar in the principal sugar growing countries was as follows (Willett and Gray): West Indies and Lesser Antilles, 284,500 tons; Cuba, 2,400,000 tons; Hawaii, 500,000 tons; Porto Rico, 345,000 tons; Mexico, 125,000; Brazil, 220,000; Argentina, 200,000; Peru, 145,000; British India, 2,550,000; Java, 1,450,000; Philippine Islands, 220,000; Formosa, 177,000; Australia and Fiji Islands, 310,000; Africa, 473,714; and Spain, 13,000 tons.

The free sugar clause in the new tariff was expected to cripple both sugar beet and cane production in the United States, except in localities which were particularly favorable. A cut of 50 cents a ton in sugar beets was made in the contracts at certain factories. Other factories closed their doors. In Porto Rico, where the industry had been developing rapidly, largely on borrowed capital, difficulty in securing loans resulted in closing up many plantations, and this threw out of employment large numbers of people who lived on these plantations and depended on them for labor.

More sugar was brought into continental United States in the fiscal year 1913 than in any other year in the history of the country. The quantity entering from foreign countries and American insular possessions was 6½ billion pounds, exceeding by 500 million pounds the figures of the former high record year, 1912. Of this amount 4⅛ billion pounds came from Cuba, one billion from Hawaii, three-fourths of a billion from Porto Rico, nearly a quarter of a billion from the Philippines and the remainder chiefly from South America. In round numbers foreign countries supplied approximately one-half the sugar consumed in the United States, one-fourth being grown in the insular possessions and one-fourth in continental United States.

SULPHUR. The production of sulphur in the United States in 1912 was 303,472 long tons, valued at $5,256,422, compared with 265,664 long tons, valued at $4,787,049 in 1911. Sulphur was produced in Louisiana, Texas, Nevada, and Wyoming. By far the larger quantity is produced in Louisiana. During the present century the growth of the sulphur industry in the United States has been phenomenal. In 1900 the production was only 3147 long tons. During the seven years prior to 1913 came the destruction of the dominating position held by Sicily in the world's sulphur market, and within this period the United States advanced to the position of one of the leading sulphur producers of the world. This condition was due entirely to the development of the sulphur deposits in Louisiana. The process employed in mining Louisiana sulphur is known as a Frasch process, from its inventor Herman Frasch (q.v.).

IMPORTS AND EXPORTS. The imports of sulphur in 1912 were 29,927 long tons, valued at $583,974. This includes imports of all varieties, including crude, refined, flowers of sulphur, and other grades. The largest quantity, 24,505 tons, was imported from Japan. The exports in 1912 amounted to 57,736 long tons, valued at $1,076,414.

SUN BATHS. See HELIOTHERAPY.

SUN YAT-SEN. See CHINA, *History*.

SURGERY. Several new methods of draining collections of fluid from the body cavities came into more general use in 1913, all of them aiming at a cure without repeated tappings. Evler, when dealing either with pleural or abdominal ascites, merely makes an opening by separating muscles or boring through bone, thus permitting the effusion to ooze into the subcutaneous tissues. This not only drains away the fluid, but has the effect of autoserotherapy (q.v.). In the case of abdominal dropsy he separates the muscles in the median line and draws the peritoneum up over the edge of the hole thus made, this being large enough to admit the tip of the finger. In the case of a pleural effusion, Evler drills through a rib and allows the fluid to escape externally through the loose subcutaneous tissues. In bursitis he sutures the internal capsule to the external layer so as to preserve the opening for a time. His results are remarkably good even in cases of abdominal ascites from cancer, and his only failures were in cases of effusion of the knee complicating a deforming arthritis. Dobbertin obtained permanent drainage of abdominal ascites into the saphenous vein. This method was not entirely new, but was improved upon by Dobbertin. He mobilizes the saphenous vein in the upper third of the thigh and draws it up through a passage made under the skin directly into the peritoneum, thus diverting the ascitic fluid into the circulation. He feared at first that blood would escape from the vein into the peritoneum, but found that this never occurred, as the attraction of gravitation aided in the evacuation of the ascitic fluid. The procedure is very simple and harmless, as he discribes it, and it is applicable not only where the Talma operation (omentopexy) is indicated, but also with stasis in the portal circulation, hypersecretion from carcinosis, unoperatable ovarian tumors, etc. He regards it as a physiologic process, providing a passage back into the blood of the fluid which came from the blood. The fluid drains away at once after the operation without the necessity of waiting for a collateral circulation to develop, as with omentopexy.

The removal of masses of abdominal fat in cases of extreme obesity is now practiced with increasing frequency. The condition is very embarrassing to men, and especially to women, interfering with excercise and comfortable dressing. It is a notable but unexplained fact that the anterior abdominal wall has a special predilection for this form of overgrowth. The operation consists of the following stages: (1) a horizontal incision, midway between the umbilicus and symphysis pubes; (2) a vertical incision joining this line and extending half way to the sternum; (3) the skin is now dissected back, the layer of fat separated from it and the underlying muscular structures, and removed *en masse;* (4) the incisions are closed, with small drainage tubes in the angles of the wound. These operations, according to Kelly, Spencer, and Weinhold, are always successful, and the relief conferred upon patients is enormous. See AUTOSEROTHERAPY; CANCER; RADIUM; and SERUM THERAPY.

SUTHERLAND, CROMARTIE SUTHERLAND-LEVESON-GOWER, 4th Duke of. An English nobleman, died June 27, 1913. He was born in 1851; educated privately and at Eton; and from 1874 to 1886 was member of Parliament for Sutherland. He was a Liberal, and of those who helped to secure the rejection of Mr. Gladstone's first home rule bill. He retired from the House of Commons because of his dissatisfaction with the developments of the Liberal policy. To the titles and estates of his father he succeeded in 1892, and was the largest land holder in England, owning estates in England, and large tracts in Canada. His estates numbered all told nearly 1,500,000 acres.

SWAMP LANDS. See DRAINAGE.

SWARTHMORE COLLEGE. An institution of higher education at Swarthmore, Pa., founded in 1869. The enrollment in all departments of the college in 1913-14 was 420. The faculty numbered 48. There were no notable changes in the faculty during the year and no noteworthy benefactions. A new system of marking was put into effect at the beginning of the collegiate year 1913-14. The productive funds of the college amount to about $1,575,000. The library contains about 25,000 volumes. The president is Joseph Swain, M.S., LL.D.

SWAZILAND. A British protectorate in South Africa, bounded on the north, west, and south by the Transvaal and on the east by Portuguese territory and Natal. Area, 6536 square miles. Population (1911 census), 99,959 (44,805 males, 55,154 females). White inhabitants numbered only 1083. Native crops consist of corn, millet, sweet potatoes, etc., but the production does not supply local demands. There are approximately 59,000 cattle and 170,000 sheep and goats. Tin and gold are mined. In the years 1910-11 and 1911-12 tin production amounted to 476 and 313 tons respectively, valued at £42,250, and £32,397; gold, 13,543 and 14,781 ounces, valued at £57,530 and £62,783. Swaziland is included for customs purposes with the Union of South Africa. Revenue for the fiscal year ended March 31, 1912, £57,307; expenditure, £62,192; debt on that date, £100,000. The headquarters of the administration is Mbabane. Paramount chief, Sobhuza; his grandmother, Nabotsibeni, widow of Mbandini, acts as regent. Resident commissioner in 1913 (since 1907), Robert Thorne Coryndon, C.M.G.

SWEATING. See Child Labor, and Factory Investigating Committee.

SWEDEN. A constitutional European monarchy hereditary in the male line of the house of Bernadotte. It occupies the eastern part of the Scandinavian Peninsula. Capital, Stockholm.

Area and Population. The land area is 158,692 sq. miles; the total population was estimated December 31, 1912, at 5,604,192. The total area is shown below by prefectures in sq. miles, with population according to the census of December 31, 1910:

	Area	Pop.
Stockholm*	13	342,323
Stockholm	3,016	229,165
Uppsala	2,057	128,171
Soder'land	2,630	178,577
Oster'land	4,265	294,177
Jönköping	4,449	214,460
Kronoberg	3,826	157,968
Kalmar	4,457	228,150
Gottland	1,220	55,217
Blekinge	1,164	149,377
Krist'stad	2,488	228,321
Malmöhus	1,865	457,247
Halland	1,900	147,231
Goteborg & Bohur	1,949	381,279
Alfsborg	4,915	287,700
Skaraborg	3,274	241,260

	Area	Pop.
Varmland	7,461	260,140
Örebro	3,523	207,038
Väst'land	2,602	155,925
Kop'berg	11,525	233,874
Gafl'borg	7,615	253,775
Vast'mor	9,856	250,517
Jarntl'd	19,680	118,117
Väst'bot	22,777	161,372
Nörr'ten	40,881	161,093
Total	169,408	5,522,474
Lakes:		
Vänern	2,150	....
Vättern	733	....
Mälaren	449	....
Hjälmaren	185	....
Total	172,920	5,522,474

* City.

Marriages numbered 32,612 in 1911 and 33,162 in 1912; births, 136,334 and 138,976; deaths, 79,820 and 80,563; stillbirths, 3358 and 3351 (included); emigrants, 19,997 and 27,816; immigrants, 7752 and 8142. At the end of 1912 Stockholm was estimated to have 350,955 inhabitants, Göteborg 173,875, Malmö 92,338, Norrköping 46,674, Gäfle 35,838, Hälsingborg 33,863, Örebro 32,075, Eskilstuna 28,729, Jönköping 27,864, Karlskrona 27,446, Uppsala 27,155, Linköping 23,613.

Education. Elementary schools are maintained by local taxation with state aid. Free elementary instruction is provided and is obligatory. Illiteracy is not common. The secondary and special school systems are well developed. There are universities at Lund and Uppsala, as well as private faculties. The Lutheran is the national creed; all others are tolerated, Mormonism excepted.

Production. The northern regions are under forest; in the central districts are the majority of the mines; and the southern part is devoted to agriculture, in which about 49 per cent. of the people are engaged. The principal crops, with yield in metric quintals, are as follows:

	1909	1910	1911	1912
Wheat.....	1,881,000	2,047,619	2,241,070	2,122,060
Rye.......	6,338,000	6,237,350	6,270,240	5,861,480
Barley.....	3,037,000	3,385,320	3,199,720	3,082,150
Oats	11,728,000	12,876,680	11,025,770	12,739,260
S. beets..	....	....	8,211,230	9,901,842

Forests cover half of the total area, and supply timber, pitch, tar, and fuel. Pine, birth, and fir are most abundant. The mineral wealth is great. Coal is mined; an excellent grade of iron (Dannemora) is converted into the finest steel made; gold and silver are produced in small quantities, and copper, lead, zinc, nickel, cobalt, alum, and sulphur are mined. Output of copper ore in 1911, 1623 tons, silver and lead ore 2999, zinc 51,242, manganese 5377, sulphur pyrites 30,096, coal 311,809, iron 6,153,778. Iron ore exported (1911), 5,086,898 tons; pig iron 150,444, bar iron 158,000. Total pig iron produced 634,392 tons, bar iron 423,170.

There were (1910) 1232 saw and planing mills (value of output, 182,456,197 kronor), 519 joineries and furniture factories (27,058,674 kr.), 166 wood pulp mills (95,670,178 kr.), 70 paper and pasteboard mills (53,885,555 kr.), 1384 flour mills (106,392,847 kr.), 658 iron and steel works (94,153,755 kr.), 459 machinery factories (82,333,521 kr.), 21 sugar mills (40,289,831 kr.) and 10 refineries (65,099,661 kr.); etc.

Livestock (1911): 588,485 horses, 2,689,609 cattle, 945,709 sheep, 951,164 swine.

Commerce. In thousands of kronor are shown below imports and exports, including precious metals, for consecutive years:

	1907	1908	1909	1910	1911
Imports....	682,105	608,932	616,806	671,633	696,617
Exports....	524,663	482,017	472,980	592,864	663,576

The principal articles of import and export in the 1911 trade, with values in thousands of kronor, are given as follows:

Imports	1000 kr.	Exports	1000 kr.
Coal	55,111	Timber	166,051
Cereals	47,782	Wood pulp.......	84,307
Coffee	40,025	Iron	54,777
Machinery	28,779	" ore...........	51,413
Hides	28,601	Butter	46,791
Cotton	24,050	Machinery	42,205
Vegetable oils....	20,916	Paper	33,912
Oil cake..........	20,360	Hides	15,371
Petroleum	20,002	Iron mfrs.........	14,913
Iron mfrs.........	18,601	Live animals.....	14,768
Copper	15,012	Stone	13,968
Iron	13,524	Wooden wares...	11,913
Wool	13,289	Matches	11,787
Seeds	12,276	Fish	10,116

The principal countries of origin and destination in the 1911 trade were as follows, values in thousands of kronor: Germany, 244,188 imports and 133,518 exports; United Kingdom, 160.830 and 195,829; United States, 54,656 and 24,280; Russia and Finland, 46,096 and 34,347; Denmark, 46,779 and 66,136; France, 32,231 and 48,510; Norway, 20,113 and 37,559; Netherlands, 19,394 and 23,927; Brazil, 18,273 and 1412; Belgium, 9939 and 18,276; Argentina, 8446 and 7422; British India, 8319 and 4585; Italy, 5276 and 3563; etc.

Vessels entered in the 1911 trade, 14,183, of 6,084,000 tons, of which 8656, of 3.783,000 tons, Swedish; cleared 22,012, of 8,331,000 tons, of which 12,204, of 4,400,000 tons, Swedish. Merchant marine, January 1, 1911; 1539 sail, 154,968 tons; 1219 steamers of 610,100 tons.

COMMUNICATIONS. There were in operation, at the end of 1912, 14,272 kilometers of railway, of which 4683 belonged to the state and 9589 to private companies. State telegraph lines, 10,419 kms. (railway lines 10,564 kms.); wires, 32,247 (28,041); stations, 2904; wireless stations, 5, and 29 on board vessels. Urban telephone wires, 151,863, interurban, 139,108. Post offices, 3790.

ARMY. Progress continued during the year 1913 on the reorganization of the Swedish army, and it was thought that by 1914 the entire scheme would be in full effect. Every citizen is liable for personal military service over a period of 19 years, but the periods of actual training are short and consist of from eight to twelve months, according to the branch of the service, which is spread over a period of four years. In 1913 the classes of troops known as Indelta, based on the feudal system of land tenure by military service, disappeared, having survived until this year after over four centuries. The war strength of Sweden was estimated at 230,000 men in the first line, 90,000 in the second line, and 165,000 in the Landsturm, while with the new and complete organization which was in progress it was estimated that a total strength of 600,000 eventually would be reached.

NAVY. The navy included (1913): 12 coast defense vessels, of 42,600 tons; 1 armored cruiser, of 4100; 10 protected monitors, 7200; 5 torpedo gunboats, 4000; 4 gunboats, 1850; 8 destroyers, 3450; 31 first-class torpedo boats, 3100; 22 second-class torpedo boats, 1300; besides submarines, school ships, dispatch boats, etc. A coast-defense vessel is building—the *Sverige*, of 6800 tons displacement, 22.5 knots, speed; four 11-inch, eight 6-inch, and six 12 pdr. guns. Five torpedo boats building, and several submarines, number undisclosed. The gunboat *Urd* was sunk in a collision August 22, 1913. Personnel (1913), about 7500 of all ranks; also 20,000 yearly conscripts available, but seldom called up.

FINANCE. The krona is the monetary unit (worth 26.8 cents). For 1913 the budget balanced at 263,027,200 kronor; for 1914, at 273,739,700 kr. Revenue in 1914 from customs and excise, 110,800,000; tax on income, invested capital, etc., 58,000,000; personal tax, 850,000; revenue-earning administrations, 39,398,000; from loans 42,314,000; state bank profits, 7,058,000; etc. Ordinary and in parentheses extraordinary expenditure as follows: 50,048,112 (5,185,988) kronor for army, 20,694,927 (7,247,873) marine, 12,102,013 (11,212,587) interior, 14,727,495 (4,153,605) finance, 27,495,266 (5,482,234) worship and instruction, 5,414,645 (4,705,655) agriculture, 6,059,198 (3,172,302) pensions, 5,118,120 (1,074,680) justice; 1,794,052 (541,848) foreign affairs, 1,493,000 (100,000) civil list; total ordinary 144,946,828 kr., total extraordinary 42,876,772 kr.

GOVERNMENT. The constitution of June 6, 1809, as amended June 22, 1866, vests the executive authority in a king, assisted by an executive council. The upper chamber of the legislative body (Riksdag) is composed of 150 members elected for six years by provincial and communal electors; the lower has 230 members elected for three years.

The reigning king, Gustaf V., was born June 16, 1858; he married September 20, 1881, Princess Victoria of Baden, and succeeded his father to the throne December 8, 1907. The heir-apparent is Prince Gustaf Adolf, born November 11, 1882, married June 15, 1905, to Princess Margaret of Great Britain and Ireland; issue, three sons and a daughter.

The ministry as constituted October 7, 1911, was composed in 1913 as follows: Karl A. Staaff, minister of state; Dr. J. J. A. (Count) Ehrensvärd, foreign affairs; Gustaf Sandström, justice; Dr. David K. Bergström, war; Jacob L. Larsson, marine; P. Axel V. Schotte, interior; A. T. (Baron) Adelsvärd, finance; Dr. F. Berg, worship; P. Alfred Petersson, agriculture; B. A. Petrén and Karl J. Sternström, without portfolio.

HISTORY. Parliament was opened on January 16. The speech from the throne foreshadowed several important reforms of which national insurance and old-age pensions were perhaps the most significant. The old-age pension bill passed the Riksdag on May 21, receiving in the first chamber a majority of 111 to 28, and in the second chamber an even larger majority of 172 to 25. During the summer and autumn great interest was manifested in the question of national defense. The ministerial position was defined in December by the premier, M. Staaff, who insisted that, although Sweden's foreign relations are peaceful and there is no immediate menace of war, the general international situation demanded the augmentation of Sweden's military power. In order to assure her neutrality, Sweden must multiply and strengthen her fortifications, build new naval units, construct torpedo and submarine boats, and enlarge the army. The term of service in the marine was to be lengthened; and the extension of the period of service in the infantry would also be desirable; but for parliamentary reasons, the government would defer this question until after the elections of September, 1914. In order to cover the increased expenditure for defense the government would prepare a bill for a non-recurring contribution, graduated so as to fall mostly on the wealthier classes.

In connection with these increased warlike preparations, it is interesting to recall the Scandinavian neutrality agreement signed at Stockholm on December 23, 1912, by the Danish and Norwegian ambassadors and the Swedish minister of foreign affairs. The document related only to the securing of identical neutrality regulations for all three countries, but some sections of the European press interpreted it as a move towards federation with the purpose of resisting hypothetical Russian aggression.

SWIFT, LEWIS. An American astronomer, died January 5, 1913. Born at Clarkson, N. Y., in 1820, and educated at the Clarkson Academy, he went into business in a small town in New York, but soon decided to make astronomy a life study. He came into prominence in scientific circles in 1862, when he discovered the great comet which was given his name. Following this discovery, he removed to Rochester and in that city set up on the roof of a cider mill the first observatory in the United States. He discovered more comets and nebulæ than any other man in the world. He was engaged in the hardware business from 1872-81, but in the meantime devoted his leisure moments to a search for comets, making discoveries in 1877, 1878, 1879, 1880, 1881, and 1882. For three successive years the Imperial Academy of Vienna awarded to him its medal for the most important contributions to astronomy. The people of Rochester presented him with a 16-inch refractor, at a cost of $16,000. With this Dr. Swift discovered 900 nebulæ at Rochester, and over 300 at Echo Mountain, California, and in both places discovered all told a dozen comets. In 1878, during a total solar eclipse, at Denver, he discovered two intra-Mercurial planets. The telescope given to him by the people of Rochester was installed in the Warner Observatory. When this was closed through the failure of its principal benefactor, Dr. Swift became director of the Lowe Observatory on Echo Mountain, California. Soon after this, his sight failed, and he returned to his old home in Marathon, N. Y. He was a Fellow of the Royal Astronomical Society of England, a member of the British Astronomical Association, and the author of *Simple Lessons in Astronomy* (1888).

SWIMMING. Three new swimming records were established in 1913. Duke P. Kahanamoku of Honolulu swam 50 yards in 23⅗ seconds; L. J. Goodwin of the New York A. C., swam 1 mile in 27 minutes 6 seconds, and Perry McGillivray of Chicago swam 500 yards in 6 minutes 20⅗ seconds. A new figure also was set for the 400-yard relay race by a quartette from the Illinois A. C., consisting of P. McGillivray, E. W. McGillivray, H. J. Hebner,, and A. C. Raithel. Their combined time was 3 minutes 46⅕ seconds. The championships of the Amateur Athletic Union were held in several different cities of the United States at various times during the year. The winners of the principal events were: Indoor—50 yards, P. McGillivray, Illinois A. C.; 100 yards, H. J. Hebner, Illinois A. C.; 220 yards, P. McGillivray; 500 yards, P. McGillivray; 400 yard relay, Illinois A. C.; springboard diving, A. McAleenan of Yale University. Outdoor—440 yards, J. C. Wheatley, unattached; 880 yards, G. E. Tomlinson, Philadelphia Swimming Club; 1 mile, L. J. Goodwin, New York A. C.

Yale won the intercollegiate team championship, defeating Princeton in the deciding match by a score of 34 to 19. Cross of Princeton won the 100-yard and 220-yard events and Robinson of Princeton captured the plunge for distance. Yale won the 600-foot relay race; Howe of Yale won the 50-yard race, and McAleenan of Yale won the fancy diving event. Illinois won the conference college championship with Wisconsin second and Northwestern third. In water polo Princeton captured the national intercollegiate championship by defeating Illinois 3 goals to 1.

Several long-distance swims took place during the year. S. Richards swam from the Battery, New York, to Sandy Hook in 8 hours 12 minutes, this being the second time this feat has been accomplished. C. B. Durborow made three attempts to emulate Richards's example but failed although once he got within half a mile of his goal. H. Elionsky swam from the Battery to within half a mile of Coney Island with wrists and ankles manacled. An attempt made by H. F. Sullivan to swim the English Channel failed.

SWITZERLAND. A central European republican confederation composed of 25 cantons and demi-cantons. Bern is the capital.

Area and Population. In the table below are found the area and the *de jure* population of the 25 divisions; area in square kilometers, population according to the census of December 31, 1910:

	Sq. kms.	Pop.		Sq. kms.	Pop.
Zürich	1,724.76	503,913	Appenzell I.-Rh.	172.88	14,659
Bern	6,844.50	645,877	St. Gall	2,019.00	302,896
Lucerne	1,500.80	167,223	Graubünden	7,132.80	117,069
Uri	1,076.00	22,113	Aargau	1,404.10	230,634
Schwyz	908.26	58,428	Th'gau	1,011.60	134,917
Obwalden	474.80	17,161	Tessin	2,800.90	156,166
Nidwalden	290.50	13,788	Vaud	3,252.00	317,457
Glarus	691.20	33,316	Valais	5,224.49	128,381
Zug	239.20	28,156	N'châtel	807.80	133,061
Fribourg	1,674.60	139,654	Geneva	282.35	154,906
Solothurn	791.51	117,040	*De jure*	41,323.99	3,753,293
Basel-Stadt	35.76	135,918	*De facto*	......	3,765,123
Basel-L'dt	427.47	76,488			
Schaffhausen	294.22	46,097			
Appenzell A.-Rh.	242.49	57,973			

Those of the population speaking German as their native tongue numbered 2,599,194; French, 796,220; Italian, 301,323; Romanish, 39,912; other languages, 28,172. Protestants numbered 2,108,642, and Roman Catholics, 1,590,832. The number of marriages in 1911 was 27,809 (27,346 in 1910), births 94,185 (96,669), deaths 62,484 (59,653), stillbirths (included) 2865 (3155). Emigration in 1912, 5871 (5512 in 1911), of whom 4417 went to North America, 1256 to South America, etc.

The communal population of Zürich as estimated in the middle of 1913 was 200,600; Basel, 137,500; Geneva, 135,000; Bern, 90,800; St. Gall, 80,000; Lausanne, 69,400; Lucerne, 41,500; Chaux-de-Fonds, 38,600; Winterthur, 25,800; Neuchâtel, 24,100; Bienne, 24,000; Fribourg, 21,200; Montreux, 19,700; Schaffhouse, 18,600; Vevey, 14,000.

Education. Primary instruction is free and enforced in the Protestant cantons. The cantons and communes are responsible for educational affairs within their limits. There are efficient secondary and special schools, well attended; and seven universities.

Production. Switzerland is the most mountainous country in Europe, and agriculture is possible only in the valleys. Here cereals, fibre plants, tobacco, fruits, and vegetables are grown. Principal crops with area and yield for two years (1913 provisional) are shown below, with average quintals per hectare in 1912:

	Hectares		Quintals		Qs. ha.
	1912	1913	1912	1913	
Wheat....	42,200	42,365	865,000	955,000	20.5
Rye.......	24,500	24,254	433,000	445,000	17 7
Barley....	5,000	5,182	93,000	98,000	18.6
Oats......	33,000	32,644	583,000	739,000	17.7
Corn......	1,330	1,800	27,000	80,000	20.3
Vines*....	23,700	23,000	903,000	264,000	38.1
Tobacco..	320	320	5,500	6,020	17.2
S. Beets..	......	792	......	316,800	....

* Yield in hectoliters of wine.

The livestock census of April 21, 1911, returns 1,443,483 cattle (796,909 cows), 144,128 horses, 3151 mules, 1566 asses, 570,226 swine, 161,414 sheep, 341,296 goats.

Silk-worm eggs placed for hatching (1912), 188 hectograms, producing 31,200 kilograms of cocoons.

The manufacture of butter, cheese, condensed milk, and milk chocolate constitutes an important source of the country's wealth and great quantities are exported. The timber industry, pisciculture, salt mining, cement manufacture, and distilling are flourishing industries. Great numbers of men and women are engaged in house industries, which include the making of watches and clocks, leather goods including gloves, pottery, tobacco, snuff, etc. About sixty thousand persons are employed in silk and cotton mills.

Commerce. Imports and exports of merchandise and precious metals are given below in francs:

	1910	1911	1912
Imps. mdse..	1,745,021,011	1,802,358,995	1,979,100,604
" pr. mets.	42,890,821	41,484,268	60,329,609
Total imps..	1,787,911,832	1,843,843,263	2,039,430,213
Exps. mdse..	1,195,872,131	1,257,309,404	1,357,616,671
" pr. mets.	28,258,200	31,528,813	33,118,057
Total exps..	1,224,130,331	1,288,838,217	1,390,734,728

The principal articles of the special trade for 1912, with values in thousands of francs, are shown in the following table:

Imports	1000 fr.	Exports	1000 fr.
Cereals	214,000	Cottons	247,000
Silk	157,700	Watches	173,800
Coal	97,100	Silks	167,200
Precious metals.	81,600	Machinery	93,000
Iron	73,200	Cheese	84,700
Animals	72,700	Chemicals	63,800
Cottons	69,400	Spun silk........	59,100
Chemicals	68,500	Chocolate	55,200
Woolens	61,700	Raw silk........	52,700
Machinery	56,700	Milk	50,500
Meats	55,100	Cotton yarn.....	25,100
Cotton	51,700	Hides	21,900
Sugar	50,900	Iron mfrs........	21,200
Wine	49,400	Straw mfrs......	16,800
Iron mfrs.......	41,700	Animals	16,400
Timber	37,800	Jewelry	15,700
Leather	30,900	Woolens	15,300

The principal countries of origin and destination, with the value of their trade expressed in thousands of francs, are as follows: Germany, 647,161 imports and 307,029 exports; France, 376,334 and 137,943; Italy, 192,623 and 90,608; Austria-Hungary, 122,366 and 88,662; United Kingdom, 116,765 and 230,005; United States, 83,761 and 135,672; Russia, 80,226 and 47,808; Rumania, 43.217 and 9706; Belgium, 38,938 and 27,620; Argentina, 35,979 and 29,827; Spain, 30,408 and 27,280; Brazil, 20,686 and 22,060; Netherlands, 21,647 and 11,870; Canada, 13,900 and 31,774; etc.

Communications. There were in operation January 1, 1912, 5112 kilometers of railway. About a third of the railways have been nationalized, but they have not proved a profitable enterprise. The extension of the most-favored-nation treatment to Germany and Italy, as well as to Great Britain, over the entire federal system was effected by the ratification, in 1913, after much dissention, of the St. Gothard convention. Both nations were already possessed of that privilege over the St. Gothard line, to which both contributed considerable subscriptions for construction. Although the official report on state railways shows an excess of revenue over expenditure for the year 1911 of 71,864,082 francs (revenue 196,511,857 francs, expenditure 124,647,775), this apparent profit is fictitious, certain expenditures classed as extraordinary not appearing in this table.

The year 1913 saw the completion of several notable tunnels and parts of other tunnels. The 48-mile connection between Fruitgen and Brigue, which includes the 9½-mile Lötschberg tunnel, which had been under construction since October, 1906, not to mention other smaller tunnels and important engineering works connected with the approaches, was completed and opened in June. To improve the connection between France and Switzerland heavy tunnel work was prosecuted on the Münster-Legnau Railway, including the 4-mile tunnel through the Grenchenberg. On the Sissach-Olten line the Hauenstein tunnel was well under way. The duplication of the Simplon tunnel by the construction of a new gallery was also in progress. In September there was opened an 18-mile electric railway from Bern to Wiessenthal, while earlier in the summer, in June, the Lower Engadine Railway, St. Moritz to Schul and Terasp, was opened.

There were 442.23 kilometers of tramway in operation in 1911 and 423 kilometers funicular railways. Telegraph lines (state), 3575 kilometers; wires, 26,306; stations, 2291. Telephone lines, 21,336 kilometers; wires, 360,425. Post offices, 1957.

Finance. The monetary unit is the franc (par value 19.295 cents). Revenue and expenditure are given below in francs for three years:

	1909	1910	1911
Revenue.......	155,678,421	166,866,721	172,209,361
Expenditure...	158,842,817	161,330,520	172,461,307

The new basis of circulation, by which after 1911 only the net amounts of administration of posts and telegraphs are included in the totals, makes the revenue for 1911, 98,044,100 francs and the expenditure 98,296,046. Revenue from customs, 80,947,509; investments, 4,458,870; military, 4.404,585; posts, telegraphs, 3,751,374; railways, 81,499; real property, 1,993,338; industry and agriculture, 3,832,873; general administration, 98,068; etc. Expenditure on military, 44,777,894; interior, 16,866,864; industry and agriculture, 14,975,513; finance and customs, 8,515,698; debt charge, 7,108,367; justice, and police, 2,029.891; general administration, 1,414,809; political departments, 1,108,051; posts and railways, 539,211; etc. The debt stood, January 1, 1912, at 255,130,031 francs. The budget for 1913 is unofficially reported at 98,725,000 francs revenue and 103,155,000 francs expenditure.

Army. The Swiss army constitutes a federal militia in which there is liability for service of thirteen years in the Auszug, or Elite, eight in the Landwehr, and the remaining years, up to 48, in the Landsturm. The figures for January 1, 1912, were as follows: Auszug, 143,851; Landwehr, 69,575 men, making a total for the field army of 213,426 men. Of the Landsturm there were about 70,000 and for the complementary service 207,004. The instructional staff is the only permanent body in the Swiss military system which consists of cadres to be filled as required.

Government. The constitution of May 29, 1874, vests the executive authority in a federal council elected by the Federal Assembly, composed of two houses—a national council of 167 members directly elected for three years, and a council of states of 44 members. The assembly also elects a president each year from among the members of the Federal Council, and a federal tribunal of 19 members and 9 supplicants for six years. President in 1913, E. Müller, chief of the political department; vice-president, Dr. A. Hoffmann, military department; interior, F. Calonder; justice and police, C. Decoppet; finance, G. Motta; commerce, etc., E. Schultess; posts and railways, Dr. L. Forrer.

HISTORY. The ratification of the Gothard Railway convention caused great agitation in Switzerland. The convention, it may be well to note, was drawn up on October 13, 1909, and subsequently ratified by Germany and Italy. It was bitterly opposed by the French cantons because it gave to Germany and Italy the treatment of "most favored nation" on Swiss railways, and might, it was feared, enable the Triple Alliance to dominate Switzerland, and by economic means to hold the Swiss confederation in vassalage. In spite of opposition, the National Council passed the convention on April 4 by a vote of 108 to 77, the Liberals of the German provinces voting in the affirmative, and the Democrats, Social Democrats, French, and Clericals constituting the minority. In the State Council the convention was approved by 33 to 9 votes. Indignation was widespread and active. In Bern a popular meeting of protest was attended by 100,000 persons, and it was announced that 125,000 signatures had been secured for a petition of protest. There were also circulating among the people petitions for proportional representation and for compulsory popular ratification of all long-term treaties. In March the Federal Assembly received a message from the Federal Council regarding the reorganization of the federal executive. Hitherto the conduct of foreign affairs had been subject to annual interruptions by the presidential elections; in the future the department of foreign affairs was to be under a more continuous management. The former department of industry and agriculture was transformed into a department of political economy. On December 11, Dr. Arthur Hoffmann, a Radical Democrat of St. Gall, was elected to be president for the year 1914, and Dr. Giuseppe Motta, an Italian Catholic-Conservative, was chosen as vice-president. For the Bern conference, see GERMANY.

SYKES, FREDERICK HENRY. An American scholar and educator, appointed in 1913 president of the Connecticut College for Women. He was born at Queensville, Ontario, in 1863; graduated from the University of Toronto; and was a student, scholar and fellow at Johns Hopkins University from 1891-95, receiving the degree of Ph.D. from that university in 1894. He was a member of Exeter College, Oxford, in 1899. For many years he was a teacher. He became professor of English and history at the Western University, London, Ontario, in 1895, and in 1897 was appointed staff lecturer of English literature for the American Society for the Extension of University Teaching. In 1903 he was appointed professor of English literature and director of extension teaching at Columbia University, and in 1910 became director of technical education at the Teachers' College in Columbia University, holding this position until his appointment as president of the Connecticut College for Women. He was also lecturer at Johns Hopkins University and the Brooklyn Institute; the author of several books on English and composition; editor of various English texts, and general editor for the Scribner English Classics Series.

SYNDICALISM. This is the most radical of the modern labor movements. Begun in France, it derived its name from the French trade unions, or *syndicats*. Its representatives have within a few years spread its philosophy of the labor movement to England, South and Central Europe, Australia, and the United States. The American Industrial Workers of the World (q.v.) hold many similar doctrines which they developed quite independently. Syndicalism differs from trade unionism in that it would organize the workers by whole industries rather than by trades or crafts; thus all men engaged in railroading, or even in transport work of any sort would be brought into one mammoth body which would thus achieve control over the industry. To the theory of industrial unionism is added the policy of direct action. This is such action as brings immediate pressure upon the employer and is opposed to political action or the betterment of conditions through legislation and other governmental interference. Direct action includes the general strike and sabotage; the latter is the destruction or spoiling of materials, the choking of machinery and other crippling of the industrial processes so as to reduce or destroy the profits of the employer. In 1913 Syndicalist ideas were prominent in the Dublin strike and in those at Milan and Barcelona. They were preached by James Larkin through Great Britain and by Tom Mann, an Australian and British agitator who made addresses in the United States. See also GREAT BRITAIN, *History;* INDUSTRIAL WORKERS OF THE WORLD; SOCIALISM; STRIKES; and TRADE UNIONS.

The main feature of the year's history of Syndicalism was the flood of expository, critical, and apologetic literature called forth by the popular interest in a new and spectacular social philosophy. Among the recent works were the following: *Syndicalism and the General Strike*, by Arthur S. Lewis; *The New Unionism*, by André Tridon; *American Syndicalism—The I. W. W.*, by John Graham Brooks; *The Minimum Wage and Syndicalism*, by James Boyle; *Syndicalism*, by J. Ramsay MacDonald; *Syndicalism, Industrial Unionism and Socialism*, by John Spargo; *Worker and His Country*, by F. A. G. Ware; *Trial of a New Society*, by J. Ebert; *Sabotage*, by Emile Pouget. There was in addition a flood of explanatory periodical literature, for which consult the *Readers' Guide*.

SYPHILIS. See INSANITY, and SALVARSAN.

SYRACUSE UNIVERSITY. An institution for higher education at Syracuse, N. Y., founded in 1870. The students enrolled in all departments in 1913-14 were 38,000. The faculty numbered 278. In 1913 Dr. W. P. Coddington, professor of philosophy, died. He had been on the faculty since its foundation and was previously at Geneva College, the forerunner of Syracuse University. Among the benefactions received during the year was one of $30.000 from Mrs. Russell Sage for the equipment of the Joseph Slocum College of Agriculture, and $4000 for the University Y. W. C. A. The productive funds of the university amount to about $2,000,000, and the income to about $605,000. The library contains 92,000 volumes. The president is James R. Day, S.T.D., LL.D.

TAGORE, RABINDRA NATH. A Hindu poet, in 1913 awarded the Nobel Prize for literature. He was born in Calcutta in 1860, and spent his childhood years in that city. At the age of 17 he was taken to Europe to complete his education. After his return to India, he devoted most of his time to writing for magazines, particularly for a magazine conducted by his family. He became one of the best known journalists in India, and was also known as an educator, philosopher, religious teacher, and preacher. His first poems were romantic and sensual, but in later years a marked change took place, and these qualities were succeeded by idealism and spirituality. He wrote many poems which became extremely popular in India. His poetry has made an extraordinary appeal to his compatriots and has shown a strange power to move the hearts of the masses of Bengal. Although his native language is Bengali, he has attained an excellent English style, and the spell he casts over his countrymen has extended to alien and western peoples. The works of his that have been translated into English are *The Crescent Moon* (child poems), *The Gardener, Gitanjali, Song Offerings,* and *Sadhana: the Realization of Life.* See also NOBEL PRIZES.

TAIWAN. See FORMOSA.

TALL BUILDINGS. Financial conditions and general lack of activity in building in the larger cities of the United States were responsible for an apparent decrease in the number of skyscrapers under erection, or contemplated for the larger cities of the United States. It was thought by many that the erection of buildings of extreme height had been overdone from the standpoint of the investor, as regards their general effect on property and property values. Accordingly, throughout the United States there was general agitation in the larger cities towards restricting the height of buildings, and where building codes were being changed this found expression in discussion and, in some cases, in regulations adopted. The highest building yet to be designed was planned during the year by Francis H. Kimball and the plans were filed on December 31, 1913, in the building department of the Borough of Manhattan in the City of New York. It was evident that the filing of these plans was to forestall limitations of building height quite as much as with any view to the immediate erection of such a structure. The site selected was bounded by Broadway, Eighth Avenue, 57th and 58th streets, and the new building was to be 51 stories high, surmounted by a female figure with an extreme height of 894 feet 6 inches. The estimated cost of the building was $12,500,000.

TANGIER. See MOROCCO, *History, The Spanish Zone.*

TANGO. The general movement of dancing in 1913 in the United States and European countries took the name of "tango," which comes from the Argentine Republic, and signifies a peasant dance in minuet time. From Argentina the tango was introduced into the Bohemian quarter of Paris, and later taken up by fashionable masters, and fitted for society. Thence it came to America. Its vogue in the United States began in April, 1913. The negroid one-step dances known as the turkey-trot, the bunny-hug, the grizzly bear, the Texas tommy and others had become so widespread in New York City, that in early April, Mayor Gaynor ordered an investigation of dance halls where liquor was served. The inspectors found that the dance craze had grown so that young girls were dancing at all hours without restriction of manner or place, and that public dancing had in many cases degenerated into a mere orgy. Several of the so-called "tea-trotteries" were closed temporarily, 150 licenses revoked, and strict orders given for the dance halls to close promptly at 1 o'clock A. M. At about the same time, the turkey-trot, attacked by society people and the clergy, and investigated by students of sociology, suddenly came into bad repute.

Gradually a new form of one step took on the name of the new dance from Argentina which was at the time being exhibited by a number of professionals. But this new variety which was now popularly called the tango was entirely different from the Argentine dance; it differed from the old turkey-trot only in discarding the violent movements of the shoulders and waist, which had previously been considered so objectionable.

With the advent of the summer months, and its new name of tango, the expurgated one-step took on a new impetus. Expensive cabaret performers of 1912 were displaced by dancing masters in hotels and cafés, who taught the patrons to do the new dances; studios of the dance, run sometimes by experienced dancing masters or former vaudeville artists, were set up on all sides under the advanced scales of prices for instruction which ran as high as $25 an hour. Many of their pupils after a few lessons constituted themselves teachers of the tango in all parts of the United States.

Under such unskilled instruction and the improvisations of many who, under the exciting stimulus of the new dances, danced for the first time, hundreds of variations crept into the one-step, and the tango came to mean anything except the old-fashioned waltz, two-step, and Boston. A few of the varieties were the maurice, castle-walk, tangle, dip, lame-duck, hesitation, aeroplane. So wide did variations in dances become, it was almost impossible for two people to dance together the first time except in a few of the simpler steps.

Meanwhile, the "tea-trotteries" had changed their names to become *thés dansantes* (tea-dances); dancing at meals was the vogue; and most of the large New York restaurants gave parts of their floor to the dancers. On the night of December 31 every important hostelry in the metropolis had provided space to dance the new year in. At this time the craze in the United States was at its height.

When, however, it had been discovered that the spirit of the turkey-trot had not changed with the change of name, agitation began anew for the reform of the tango. Investigations were conducted by the authorities of Chicago, Cleveland, and other smaller cities; the tango was forbidden in the Panama Canal Zone. Realizing that the trouble lay not in the dance, but in the close position of the dancers, an attempt was made by several New York society leaders to start a vogue for better dances such as the innovation. A convention of dancing masters in Chicago recommended a rule requiring six inches distance between partners. But neither of these movements was successful.

In New York dancing masters of reputation agreed an attempt should be made to standardize and eliminate all objectionable and useless varieties, and this for the first time cleared up in the popular mind what the genuine tango was. In December, the Argentine dance and with it the Brazilian maxixe were much danced in public, and by the end of the year were beginning to bid in popular favor against the one-step.

In May controversy raged in England about the tango. Though it was said to be opposed by Queen Mary, and denounced by other prominent people, it gained in popularity throughout the summer. Tango clubs were formed, and professionals were brought from Paris as instructors. By November the craze had reached its height in London. As in New York, dancing with dinner was popular, and many fashionable hotels afforded opportunities for it. Toward late December, the minuet form of dance gained favor, as it did in the United States at the same time.

In Paris there was a short reaction in August in favor of the quadrille, but interest revived in the tango again later in the year. October 25, M. Jean Richepin read a much discussed paper on the "Tango" before the five academies of the Institute of France. In part, he claimed that the tango was derived from the Pyrrhic games of the Greeks, testimony to which fact was borne out by scluptures in the British Museum, and on tombs at Thebes; and that there was also evidence from the writings of Pindar, Sophocles, Socrates, and Homer that a dance much like the tango existed in their time.

The tango met with most opposition in Germany, where in November, German officers in uniform were forbidden by the kaiser to dance it, and members of the ballet of the Royal Opera warned not to take part in entertainments at which it was permitted. The king of Bavaria issued a like order in December. But these decrees checked its spread little outside of official circles. It was danced in hotels; department stores in Berlin opened dance floors; and enormous prices were paid for instruction. A play called "The Tango Princess" had its *première* in Berlin, and the king of Denmark paid $500 for a special impression of its music score.

The king of Italy was violently opposed to the tango, and forbade it at the state ball, December 30. The Pope left the regulation of this matter to his bishops. Most Catholic authorities, including Cardinal Farley, protested against indulgence in this dance on the part of their communicants.

Two recent books on dancing, each notable in its way, are: A. and V. Castle, *Modern Dancing* (New York), and T. and M. W. Kinney, *The Dance: Its Place in Art and Life* (New York).

TANNING BY NERADOL. See CHEMISTRY, INDUSTRIAL, *Synthetic Products.*

TARIFF. The enactment of the Payne-Aldrich law of 1909 was followed by the steady defeat of the Republican party and an increasing demand for a real reduction of duties. The tariff became the principal issue in national politics. Lines were clearly drawn, the Republican party defending the protective system and the Democratic demanding a tariff in which protection should be subordinate to revenue. The Progressive party's position differed little from the Republican, but was somewhat more insistent on the need of revision. The Democratic party felt that it had received a clear mandate from the country to revise rates downward. Consequently the committee on ways and means of the House having held hearings in January, presented early in the special session, April 7, a bill containing their proposals. This was very largely the work of Chairman Underwood of that committee, Democratic House leader. Two weeks later there was issued House Report Number 5 (Sixty-third Congress, first session), giving a general survey of the tariff situation and a most elaborate and detailed comparison of rates and imports. This document was considered by economists and other experts one of the few great reports on public finance. It set forth the facts and principles on which the committee had revised the tariff schedules. Two general principles to produce revenue without the thought of protection; and, secondly, the attainment of this end without injury or destroying legitimate industry. The committee also sought to eliminate the production of profits and to cut off the duties which enabled manufacturers to exact a bonus without rendering a compensating service. Moreover, and perhaps most important of all, the committee sought to introduce in every line of industry a competitive tariff basis which would allow some importation and thus prevent the monopolization of the whole market except by the sale of better goods at lower prices.

Just what was meant by a competitive tariff was not perfectly clear, though it was doubtless intended to imply rates lower than those justified by the Taft principle of making rates so as to equalize costs of production. This latter principle might have been interpreted so as to barely preclude foreign competition, while the Democratic principle would make rates low enough so as to insure competition without destroying domestic production. In this connection the meaning of "legitimate" industry was also doubtful; but its use very clearly made possible such a reduction of rates and such a consequent increase of foreign importation that domestic production would cease.

The Democrats rejected every proposal to revise the tariff board as a means of arriving at a true level of rate making. They were thus charged with not producing a "scientific" tariff. But they had previously opposed the tariff board. There was thus a partisan element attaching to this history, and revision by schedule on the basis of tariff board findings would have met endless delay. It was determined therefore to make a complete revision at once on the basis of the best evidence obtainable, leaving to experience the suggestion for further change.

After a very notable contest in Congress a bill was passed and signed October 8. The vote in the House was 254 to 103, 4 Democrats voting against and 3 Republicans in favor. In the Senate the vote was 36 to 17, Senators La Follette and Poindexter voting for the bill and the 2 Democrat senators from Louisiana voting against it because it lowered the rates on sugar. The historical significance of this event was very great, because it very sharply reversed the tariff policy which had prevailed for half a century. In the debates Chairman Oscar W. Underwood had stated that the average duty under the new law would be 26 per cent., the lowest imposed in 75 years. It was notable also because of the controversy part played by the Executive of the nation in its passage.

WOOL. One of the principal points of attack in the Payne-Aldrich law was Schedule K, the woolen schedule. In bills introduced in 1911 and 1912 the Democrats had proposed to reduce the tariff on raw wool to 20 per cent.; but in 1913 they boldly removed the duty entirely, admitting raw wool free. This step was defended by previous reports of the tariff board, and by the absence of arguments other than those derived from vested interest and extreme protectionism for maintaining the duty. It was felt also that this reduction would affect the cost of living.

This latter consequence was to be realized by the removal of the compensated specific duties on woolen cloth in the new tariff. Only *ad valorem* duties are retained on woolen goods. These are about 35 per cent., as compared with 50 to 55 per cent. plus the compensation duties previously. Actually, the previous rates ranged as high as 100 per cent. on goods imported and up to 140 or 150 per cent. on many other goods which were thus prohibited. Thus on goods which have been imported, the reduction would be about that from 95 per cent. to 35 per cent. Nevertheless, opinion greatly varied as to the effect on the prices of woolen goods. The duties on woolen yarns are 20 per cent.; on tops 15 per cent.; on carpets 20 to 35 per cent.; on woolen stockings 20 per cent.; on flannels 25-30 per cent.

COTTON. Another schedule which had been vigorously attacked during and following the Payne-Aldrich revision was that of cotton goods. The entire schedule was greatly simplified; and above all the combination of specific and *ad valorem* duties, which had been utilized to make the schedule integrate, misleading, and the means of special favoritism, was abolished. In the new rates a duty of 5 per cent. *ad valorem* is placed on cotton yarns of the lowest counts, and 25 per cent. on the best yarns. Cheapest cloths will pay 7½ per cent., and fine grades 30 per cent. In the latter is included 2½ per cent. imposed on all bleached, dyed, printed, or mercerized cloths. On hosiery the rates range from 20 per cent. to 50 per cent. Cotton knit goods will pay 30 per cent., as will all goods not included under special rates. But cotton gloves will pay 35 per cent.

SILKS. Here also was a schedule which had been intricate and often deceptive; and here also a system of specific rates or their combination with *ad valorem* rates was replaced by the *ad valorem* system. The general rate on silk fabrics was fixed at 45 per cent.; on velvets and plushes at 50 per cent. While these rates were lower than those of previous tariffs, they were considered sufficiently high so that little disturbance would be felt in the industry.

OTHER REDUCTIONS. On pottery and earthenware reductions were not decisive, being from 55 per cent. to 35 per cent., and from 60 per cent. to 40 per cent. on principal classes of pottery and earthenware, and from 55 per cent. to 50 per cent. and from 60 per cent. to 55 per cent. on the two chief classes of china and porcelain. These duties were believed to be sufficiently high to afford substantial protection; they might have been lower and still have afforded protection, but produce more revenue.

In the iron and steel schedule the free list was increased and duties generally reduced. There were, however, no changes of great consequence on account of the commanding positions of the domestic industry.

The sugar duty was a cause of much controversy. In the tariffs of 1897 and 1899 the duty on the standard grade of sugar was 1⅝ cents per pound. Under the new law the duty will be 1 cent per pound until May 1, 1916; but on sugar from Cuba it will be ⅘ cent per pound. After May 1, 1916, sugar will be free. This three-year transition period was partly to avoid too sharp loss in customs revenue; and partly to give sugar producers time to accommodate themselves to new conditions. The cane sugar producers of Louisiana and the beet-sugar growers of other States vigorously emphasized their dependence on the tariff and the injustice involved in hastily destroying a large part of their great investments. It was expected that the new duty would result in considerable decline in importation from Hawaii and Porto Rico, but in larger shipments from Cuba and Java.

FREE LIST. The free list was made very extensive. It included wheat and wheat flour, except when imported from a country imposing a duty on American wheat and flour. Other food products included were: Cattle, swine, bacon, hams, fresh beef, veal, mutton, lamb, and pork; eggs, fish, milk and cream, oatmeal, potatoes, rye and rye flour, corn meal, bread. Many other food products had their rates greatly reduced. The free list also included flax, hides, leather, boots and shoes, lumber, coal, books, steel rails, iron ore, harvesting and other agricultural implements, cash registers, linotype and type setting machines, sewing machines, typewriters, and shoe machinery.

EXCLUSIONS. Two very notable exclusions under the new law were white phosphorus matches, the manufacture of which is attended by the disease known as "phossy jaw," or phosphorus necrosis; and aigrettes, osprey, and the feathers, heads, wings, and tails of wild birds. The principle of maximum and minimum duties carried out in 1909 was dropped. Instead the Secretary of the Treasury was authorized to add to the duties the amount of any grant or bounty given by a foreign country on goods exported therefrom.

REBATE TO AMERICAN SHIPS. The new law granted a rebate or discount of 5 per cent. of the duties on goods imported in American ships, with the provision that "nothing in this subsection shall be so construed as to abrogate or in any manner impair or effect the provisions of any treaty concluded between the United States and any foreign nation." This rebate was a disguise subsidy assigned to assist the American merchant marine. There were, however, seventeen treaties which forbade such discrimination. These countries and others had filed protests. The enforcement of this rebate was suspended following an opinion by the attorney-general that rebate could not be granted without impairing the stipulations of existing treaties and that consequently the sub-section by its own terms became imperative.

ADMINISTRATION. From the beginning of

American history the administration of tariff duties has been a serious problem. Every administrative system however carefully safeguarded and efficiently enforced has not succeeded in preventing fraud by shrewd and dishonest importers. The great changes in the rates in the Underwood act and especially the extensive reliance on *ad valorem* rates required great changes in administrative methods. The considerable lowering of the duties was naturally expected to reduce the temptation to fraud and evasion; but with *ad valorem* rates, instead of specific, fraud is relatively easy through undervaluation. Moreover, some of the duties exceed the rate of 25 to 30 per cent. which experience has shown to be the danger line in the *ad valorem* system. The new law therefore provides more certain penalties for fraud; it prohibits all litigation on contingent fees; it increases the powers of collectors; it provides that an importer suspected of fraud must either submit his books for inspection or, at the discretion of the Secretary of the Treasury, pay an additional duty of 15 per cent.; it increases the discretionary powers of the Secretary of the Treasury in other respects; and it makes provision for more accurate and better arranged statistics of foreign trade. In many details the administrative features were strengthened in the light of past experience, so that various practices making difficult the fixing of responsibility for fraud have been prevented. The very great increase in the discretion of the Secretary of the Treasury was a conspicuous feature of the administrative features of the new law. This was due to the severity of the penalties imposed by the act and the desire to permit an avoidance of undue harshness in enforcement. (See also CANADA, under *Tariff Debate;* FINANCIAL REVIEW; and GREAT BRITAIN, *passim.*)

TASMANIA. A state of the commonwealth of Australia. Area, 26,215 square miles. Population (census of April 3, 1911), 191,211, exclusive of full-blooded aboriginals. Hobart is the capital, with (1911) 27,505 inhabitants; population of the local government area, 27,526; with suburbs, 39,937. Governor in 1913, Sir William Grey Ellison-Macartney (appointed 1913). Premier, A. E. Solomon. See AUSTRALIA.

TAVIGNANO. See ARBITRATION, INTERNATIONAL.

TAXATION. In an unusual number of States special investigations bearing on taxation were begun or concluded during the year. Some of these were made by special commissions and others by recently created, but permanent, tax commissions. In Connecticut a special commission submitted a report on the taxation of corporations. In general this advocated the simplification of methods of taxing corporations by making gross earnings the general basis. With reference to the Connecticut practice of taxing railways according to market value of stock the commission found that high finance operations had resulted in such a decline in the market price of the principal railroad stock that taxes had decreased nearly $400,000 in two years, 1910-12. The report analyzed matters of taxing express companies, telephone and telegraph companies, sleeping, parlor, and dining car companies, bank and trust companies, stock and mutual insurance companies, and building and loan associations. It recommended that bank and trust companies and stock insurance companies instead of being taxed upon the market value of their shares be taxed upon the book values of such shares. Mutual insurance companies it would tax on the basis of income from investments and from premiums on Connecticut business. It would so adjust the rates on various companies that the yield under the new system would not at present vary much from the yield in the past. It found that the following rates on gross earnings were equivalent to one per cent. of true value of corporation property: Steam and electricity railways, 4.75 per cent.; car and telephone companies, 3.75 per cent.; telegraph companies, 3 per cent.; express companies, 2 per cent.; bank and stock insurance companies, 1 per cent. on book values; mutual insurance companies at 4 per cent. (but sinking to 3 per cent in eight years) upon computed incomes; savings banks and building and loan associations, 4 per cent. on taxable deposits and sums due members.

In 1912 a commission of five members submitted a report bearing mainly upon the general property tax. It found a lack of uniformity in assessments of different parcels in the same district and between different districts; an arbitrary and systematic assessment of personal property and public utility corporations; and a lack of coördination and responsibility. Although the total State and local revenue amounts to $45,000,000 per year from property assessed at $2,000,000,000 the commission found tax officials insufficiently paid, unprovided with proper equipment or records, and working independently in 500 different districts with little guidance or supervision. The commission therefore recommended a thorough revision of the tax assessing machinery so as to provide greater centralization and a definite location of responsibility. It would give the State board of equalization power to bring about uniformity throughout the State. It would create a State supervisor and a county assessor in each county, all of whom should be adequately paid. It would assess public utilities through the State board of equalization; it would exempt household furniture and personal effects and abolish the poll tax. It recommended the taxation of bank and trust companies by a uniform tax of 1 per cent. on capital surplus and undivided profits, with no deduction for exempt securities. Finally it would substitute a semi-annual for the present annual period for tax collections.

In Ohio numerous reforms were enacted on the basis of recommendations of the tax commission. A system of appointive county assessors and boards of review was substituted for the existing elective system. The so-called unit rule previously applicable to public utilities was extended to all corporations, but the franchise tax on capital stock was unchanged. Mortgage loans were made subject to taxation without deduction of indebtedness and mortgages on real estate of domestic corporations were made taxable where the property is located. Moreover, residents are to be taxed on similar investments outside of the State. In either case mortgaged property is to be taxed without reduction. Assessing officers are given increased powers of inspection and inquisition. Real estate is to be assessed annually instead of quadrennially. The State tax commission is to equalize valuations of personal property as well as of real estate.

The Arizona tax commission in its first report set forth the abuses and inequalities of the existing taxes. It showed the necessity of new laws to enable the commission to equalize assessments between counties. The subject of mine taxation was dealt with extensively, the commission being unable to agree as to the best method of taxation. The majority favored the classification of all produce houses on a graduated scale, their annual assessable value to be based on both gross and net output. The mining men themselves held conferences on the same subject, but likewise failed to reach a harmonious conclusion. The matter was then taken up by the State legislature.

Federal Income Tax. In 1909 Congress adopted a resolution proposing an amendment to the Constitution authorizing Congress to levy a tax on income "from whatever source derived, without apportionment among the several States and without regard to any census or enumeration." By the beginning of the year this amendment had been ratified by thirty-four out of the necessary thirty-six States; and early in the year it was approved by several more. When therefore the Democrats took up the problem of tariff revision and were confronted with the practical certainty that a decided revision downward would result in a decrease of customs receipts, they found this new constitutional amendment almost essential. They consequently embodied in the tariff revision law sections levying an income tax.

The new act applies to all citizens of the United States, whether at home or abroad, resident aliens, and in some instances to nonresident aliens. It provides a "normal" and an "additional" income tax. The normal tax applies to incomes above $4000 for a married person living with wife or husband, and above $3000 for all other persons, and levies thereon a tax of one per cent. Incomes are computed for the calendar year. An "additional tax" of one per cent. is levied on the amount by which any income exceeds $20,000; of two per cent. on the amount above $50,000; of three per cent. on the amount above $75,000; of four per cent. on that above $100,000; of five per cent. on that above $250,000; and of six per cent. on that above $500,000. This means for large incomes that the first $20,000, less the exemption of $3000 or $4000, will be taxed one per cent.; the next $30,000 will be taxed two per cent.; the next $25,000, three per cent.; the next $25,000, four per cent.; the next $150,000, five per cent.; the next $250,000, six per cent.; and all income above that point seven per cent. In this manner the principle of progressive taxation is realized. Indeed by many the tax was criticised as being a rich man's tax. Careful estimates of yield of the tax were $125,000,000, but some estimates were much below that figure.

Incorporated in the new law is the one per cent. tax on the net incomes of corporations as provided under the corporation or excise tax, passed in the Taft administration. This one per cent. on the dividends which coroporations distribute to stock holders is accompanied by a provision that the taxable incomes of individuals under the normal tax shall not include dividends from stock. This corporation tax covers also insurance companies; but see Insurance. Foreign corporations are taxed on net income derived from business in this country.

Following the British system effort was made to apply the principle of collecting the tax on incomes at their sources. This has the advantage of greater certainty of reaching taxable incomes, because it reduces to a minimum the opportunities for evasion. The application of this principle, however, in the American law is considerably reduced in extent because of the large exemption and because the progressive principle requires from all persons whose incomes exceed the minimum exemption a declaration of their total income. Under the stoppage-at-source principle any person or corporation making payments of more than $3000 in interest, rent, salary, or otherwise to any one person in any one year must in each instance deduct the normal tax and pay it to the tax collector. An exception to this general rule is that of dividends paid by corporations, since these are reached by the tax on the earnings of corporations above referred to. Moreover, every interest payment by a corporation, whether more or less than $3000, is taxed one per cent. Thus corporation bond holders will be taxed on the interest from their bonds regardless of their total incomes. Some corporations guarantee to purchasers the interest on their bonds free from taxes. The new law contained a proviso intended to prohibit any future issue of corporation bonds from guaranteeing exemption from the income tax. The act provides that incomes taxed at the source must be fixed or determinable. This will undoubtedly prove a source of considerable difficulty in administration, because in the course of a year the payer of income as well as its recipient may change at least once. As regards income from investments in foreign countries, the law provides for the deduction of the tax by "any banker or person who shall sell or otherwise realize coupons, checks, or bills of exchange drawn or made in payment of any such interest or dividend." The law requires that every individual, firm, or corporation must make a return covering payments by them on which the tax has been deducted, giving if possible the name and residence of the person to whom such payments are made; except that no such return need be made when such payment of income is less than $3000.

In order to secure the exemption of $3000, or in case of a married person of $4000, the tax payer must himself take the initiative. He may either forestall the deduction of the tax or he may secure a refund of the tax after it has been collected. In order to forestall the retention of the tax as regards exempted income all that is required is "to file with the person who is required to withhold and pay the tax for him, a written notice claiming the benefit of such exemption." In order to forestall the retention of the tax on any income offset by allowable deductions on account of business expenses, interest on indebtedness, taxes, losses, dividends, and the like, the tax payer must file "a true and correct return of his annual gains, profits, and income from all other sources and also the deductions asked for." The tax returns are due March 1 for the preceding calendar year, and claims for deductions must be filed not less than thirty days previous. Notice of amount of tax assessed will be given by the collector by June 1, and the tax must be paid by June 30.

Income exempted includes interest on bonds of the United States, States, and other political subdivisions; salaries of President Wilson and Federal judges in office October 3, 1913; and salaries of officers and employes of any State or political division thereof, except such salary as may be derived from the Federal government.

One of the great objections to an income tax has been its inquisitorial nature. The stoppage-at-source principle is designed to remove this obnoxious feature by relieving persons from the necessity of declaring their total incomes. In general the act provides that every person with an income of $3000 or over must make a return under oath of their gross income from all sources and the total deductions therefrom for expenses and allowances authorized by the law. Such gross income would include income already taxed at the source or in transit. But persons liable to the normal tax only need not declare dividends received from corporations or insurance companies. Moreover, a person whose entire income has been taxed at the source need make no declaration. These two exceptions to the general rule that a return must be made will not, it is evident, exempt any considerable proportion of tax payers from making a personal declaration, so that the inquisitorial nature of the tax remains. The additional tax will in every instance be levied on the basis of personal returns and collected direct from the tax payer. In all such cases, therefore, the stoppage-at-source principle does not apply, and the inquisitorial feature remains. Penalty for refusing or neglecting to make a return is not less than $20 nor more than $1000. For making a fraudulent return a person may be fined as much as $2000, or imprisoned for one year, or both.

WISCONSIN. The report on the progressive tax of Wisconsin showed that the first year's yield was about $3,500,000. This law, effective in 1912, was formulated by the best scientific experts of the State, and its administration was placed in the charge of Mr. K. K. Kennan, the author of an inductive study of forty systems of income taxation. It exempted all the more intangible forms of personalty; made extensive use of the stoppage-at-source principle whereby the tax is extracted before the income reaches its owner; taxed corporations under a separate schedule on their earning power; and distributed the revenue from the tax as follows: To the county, 20 per cent.; to the village, town, or city, 70 per cent.; and to the State for administrative puposes, 10 per cent. In 1912 about two-thirds of the yield came from 5535 corporations. Of these corporations about 72 per cent. were assessed at 6 per cent., the highest rate authorized by the law.

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TEACHER'S REGISTER. See EDUCATION IN GREAT BRITAIN.

TELEGRAPH COMPANIES. See WELFARE WORK, *Telephone and Telegraph Companies.*

TELEGRAPHY. See WIRELESS TELEGRAPHY AND TELEPHONY.

TELEPHONE COMPANIES. See WELFARE WORK, *Telephone and Telegraph Companies.*

TELEPHONY. A notable telephonic achievement in 1913 was the demonstration by actual test of the feasibility of transcontinental transmission of speech. The Bell company announced its intention of furnishing regular service of this nature at the time of the San Francisco exposition in 1915, and had done much of the construction of the final link in the transmission lines between Denver and San Francisco. Twin circuits of No. 8 wire were being installed, each loaded with Pupin coils. These two circuits were used jointly to constitute a third or phantom circuit, which was of very high transmission efficiency. Important changes in long-distance service were expected to follow the concessions made by the Bell interests whereby the latter propose to give up the control of the Western Union Telegraph Company, to refrain from seeking domination over competing lines and to open their lines to connection with those of independent companies. This policy was believed by many to be a concession to the active campaign of agitation in favor of the governmental ownership of long-distance lines. A bill authorizing such action was introduced into Congress by Representative Lewis.

The broadening field of telephony was evidenced in the great growth of private systems, many of them on a very large scale. Telephony was rapidly replacing telegraphy in train dispatching. Among its great advantages were the quickness with which any or all stations may be called and the fact that station men need not be expert telegraph operators. The St. Louis and San Francisco Railroad, anticipating a strike of 1100 operators, converted 400 stations for telephonic dispatching in practically a single day. A dispatching line 110 miles in length was installed along the reconstructed Erie Canal and greatly facilitates the movement and locking of boats. Over 4000 miles of telephone line was built by the United States Forest Service to assist in fire protection. Recently-built steamships and railroad trains of the highest grade were equipped with private systems and make outside connections at wharves and stations.

Automatic and semi-automatic telephony continued to make its chief advances in the government-owned systems of Europe. American engineers generally held to the opinion that human intelligence was necessary to the best handling of traffic. Many American exchanges were equipped with automatic switches which distribute incoming calls among the operators. In other cases the switchboards were equipped with multiple answering jacks to permit any one of numerous operators to handle any incoming call. Notable European installations of semi-automatic systems were made in Amsterdam, Posen, and Zürich, the latter for 8000 lines. Notable installations of automatic equipment were made at Marseilles, Nice, The Hague, Rome, and Munich, the last for 10,000 lines.

The year 1912 was marked by the completion of the last link in the notable underground system between Washington, D. C., and Boston. The total cost of the system was over $5,000,000, and the total weight of the cable laid 8700 tons. (See also WIRELESS TELEGRAPHY AND TELEPHONY.)

TELESCOPES. See ASTRONOMY.

TEMPERANCE ACT, SCOTTISH. See GREAT BRITAIN.

TENNESSEE. POPULATION. The population of the State in 1910 was 2,184,789. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 2,238,128.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	3,350,000	68,675,000	$52,880,000
	1912	3,332,000	88,298,000	53,862,000
Wheat	1913	700,000	8,400,000	8,232,000
	1912	674,000	7,077,000	7,077,000
Oats	1913	300,000	6,300,000	3,339,000
	1912	258,000	5,599,000	2,632,000
Rye	1913	17,000	204,000	202,000
	1912	17,000	196,000	192,000
Potatoes	1913	38,000	2,432,000	2,359,000
	1912	38,000	3,344,000	2,341,000
Hay	1913	900,000	a1,089,000	17,642,000
	1912	888,000	1,154,000	18,233,000
Tobacco	1913	90,000	b64,800,000	5,443,000
	1912	110,000	72,600,000	5,155,000
Cotton	1913	872,000	c 375,000	22,803,000
	1912	783,000	276,000	16,416,000

a Tons. *b* Pounds. *c* Bales.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $19,362,209, compared with $17,899,882 in 1911. Tennessee produces copper in important quantities. The production of blister copper in 1912 was 18,395,256 pounds, a small reduction from the production of 1911, which was 18,965,143 pounds. The entire output of the State is from the Ducktown district, located in the extreme southeastern part of Polk County. This district was one of the earliest large producers in the country. At the close of 1912 the total output of the district had been approximately 249,055,000 pounds.

The production of iron ore in the State in 1912 was 416,885 long tons, compared with 463,835 in 1911. The production of pig iron in the State in 1912 was 338,238 long tons, compared with 324,648 in 1911.

The production of coal in the State in 1913 is estimated by the United States Geological Survey at from 3 to 5 per cent. greater than in 1912. The total coal production of the State in 1912 was 6,473,228 short tons, valued at $7,379,903. This was an insignificant increase over the production of 1911, which was 6,433,156 tons. The coal mines of the State gave employment to 10,309 men for an average of 234 days in 1912, getting 10,703 men for 232 days in 1911. In 1912 the quantity of coal made into coke by the mines was 447,413 short tons, which included 390,994 tons of washed coal. The coal mines were practically free from labor troubles in 1912. There were 18 fatalities in coal mining in 1912, of which 17 occurred underground. Of these 14 were caused by falls of roof and coal. In 1911 115 men lost their lives, 84 by explosions. The total value of clay products in the State in 1912 was $1,501,016, an increase of $115,116 over 1911. The principal clay product is common brick.

Drilling for petroleum was active in many parts of the State during 1912, and indications were favorable for obtaining it in the neighborhood of Franklin.

TRANSPORTATION. On January 10, 1913, there were 45,026 miles of steam railway in the State. The electric and interurban railway mileage was 367.

EDUCATION. The total school population of the State on June 30, 1913, was 597,718. Of these 484,238 were white, and 113,480 colored. The total enrollment in the county schools of the State was 439,854, of whom 371,948 were white, and 76,222 colored. In the city schools there was an increase of 95,847, of whom 69,399 were white, and 26,448 colored. The total expenditure for educational purposes during the year was $5,866,870.

FINANCE. The report of the State treasurer for the biennial period 1910-12 shows a balance at the beginning of the period of $317,270. The receipts amounted to $8,735,768, and the expenditures to $8,267,218, leaving a balance for 1912 of $785,120. The bonded debt of the State on September 20, 1912, amounted to $15,218,600.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the Tennessee Industrial School, at Nashville; the Old Soldiers' Home, at Nashville; Tennessee School for the Blind; Tennessee Reformatory for Boys, at Nashville; the Deaf and Dumb School, at Knoxville; the Central Hospital for the Insane, at Nashville; Western Hospital for the Insane, at Bolliver; and the Eastern Hospital for the Insane, Knoxville.

POLITICS AND GOVERNMENT. There were one regular and two special sessions of the legislature in 1913. The measures enacted at the regular session will be found in the paragraph *Legislation* below. Special sessions were called for the purpose of considering bills for the enforcement of the prohibition law in the State. The incidents and results connected with these sessions will be found discussed at some length in the article LIQUOR REGULATION. The legislature on April 1 ratified the amendment for the popular election of United States senators. There was no election for State offices in 1913, as the term of Governor Hooper does not expire until January 1, 1915. The next election will be held on November 3, 1914. The legislature on January 23 elected John Knight Shields, Democrat, of Bean Station, United States senator to succeed Senator Robert L. Taylor, who died early in 1912. On January 24 the legislature elected Prof. W. R. Webb, Democrat, to fill out the term which expired March 4, to which Hon. Newell Sanders, Republican, had been appointed by Governor Hooper. The election of Shields resulted only after a deadlock in the legislature which lasted for several weeks. On the last ballot he received sixty-six votes and Charles T. Gates, Jr., sixty-four. Owing to the condition of the finances of the State because of a failure to provide for refunding the State debt, it was necessary to issue short term notes to provide for State expenses. Bills providing for such issues were passed on June 20, and notes were payable on July 1. Owing to the condition of the money market, it was necessary to pay nearly 7 per cent. interest on these notes. There were violence and disorder accompanying the attempt to pass measures for liquor law enforcement at the special session held in September. It was necessary to station armed guards in the Capitol, and on September 24 a riot nearly resulted from a clash of the partisans. The law enforcement bills were finally passed.

LEGISLATION. The legislature met in 1913 and enacted several important measures. Among these were the following: An act providing for the parole of convicts, a measure creating a department of workshop and factory inspection, and a measure removing the disabilities of married women on account of coveture, a vital statistics act, and an act giving a railroad commission authority to regulate telephone rates. See also LIQUOR REGULATION.

STATE GOVERNMENT. Governor, Benjamin W. Hooper, Rep.; Secretary of State, R. R. Sneed, Dem.; Treasurer, W. P. Hickerson, Dem.; Commissioner of Agriculture, T. F. Peck, Rep.; Superintendent of Education, S. H. Thompson, Dem.; Comptroller, George P. Woollen, Dem.; Adjutant-General, Frank Maloney, Rep.; Attorney-General, F. M. Thompson, Dem.; Commissioner of Insurance, J. William Taylor, Rep.

JUDICIARY. Supreme Court: Chief Justice, M. M. Neil, Dem.; Justices, A. S. Buchanan, Grafton Green, S. C. Williams, and D. Lansden; Clerk, Joe J. Roach—all Democrats.

STATE LEGISLATURE, 1913. Democrats: Senate, 18; House, 52; joint ballot, 70. Republicans: Senate, 6; House, 27; joint ballot, 33. Independents: Senate, 9; House, 20; joint ballot, 29. Democratic majority: Senate, 3; House, 5; joint ballot, 8.

The names of senators and representatives to Congress will be found in the article, UNITED STATES, section *Congress*.

TENNESSEE, UNIVERSITY OF. A State university of higher learning, at Nashville, Tenn., founded in 1874. The number of students enrolled in the several departments in the autumn of 1913 was as follows: College of medicine, 320; college of dentistry, 42; college of pharmacy, 14; college of liberal arts, 508; college of law, 31. The faculty numbered 164. In 1913 the chairs of history and economics were separated, and a professorship of economics was added. The productive funds of the university amount to about $425,000, and the income in 1912-13 to $238,888.

TETANUS. The *Journal of the American Medical Association's* eleventh annual summary of Fourth of July injuries indicated a still further reduction in the number of fatalities in the country as a whole, there being only thirty-two deaths from fireworks in 1913, as against forty-one in 1912, and only 3 of these were due to tetanus, as compared with 6 last year. This is in remarkable contrast to the 125 deaths from tetanus in 1909, and the 406 in 1903. The total number of casualties, however, was somewhat greater in 1913, viz., 1163, as compared with 988 last year. It was interesting to note, however, that over 40 per cent. of all casualties occurred in Pennsylvania, which reported 491 injuries, including nine deaths; and that of this total 340 or nearly 70 per cent. occurred in the city of Philadelphia, although during the last few years a vigorous campaign against the use of fireworks had been waged by some of the city's most progressive citizens. In Philadelphia the celebration of Independence Day had degenerated, according to the *Journal*, into a "disgraceful demonstration of lawlessness and disorder." Outside of Pennsylvania there were only 672 casualties, and only one other State (New York) reported more than one hundred injuries.

TEXAS. POPULATION. The population of the State in 1910 was 3,896,542. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 4,171,997.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	6,800,000	163,200,000	$133,824,000
	1912	7,300,000	153,300,000	98,112,000
Wheat ...	1913	780,000	13,650,000	12,831,000
	1912	735,000	11,025,000	10,253,000
Oats	1913	1,000,000	32,500,000	16,575,000
	1912	865,000	31,140,000	13,390,000
Rye	1913	2,000	30,000	30,000
	1912	2,000	33,000	36,000
Rice	1913	303,000,000	9,696,000	8,339,000
	1912	265,600	9,429,000	8,863,000
Potatoes...	1913	45,000	2,340,000	2,621,000
	1911	50,000	2,850,000	3,591,000
Hay	1913	400,000	*a* 464,000	5,475,000
	1912	387,000	542,000	5,637,000
Tobacco...	1913	200	*b* 120,000	26,000
	1912	200	140,000	24,000
Cotton.....	1913	12,072,000	*c*3,930,000	216,574,000
	1912	11,338,000	4,880,000	268,883,000

a Tons. *b* Pounds. *c* Bales.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $22,797,015, compared with $18,798,837 in 1911.

The total coal production in 1912 was 2,188,612 short tons, valued at $3,655,744. Of the coal produced, about 1,000,000 tons is lignite. The production of 1912 was the maximum both in tonnage and value, compared with 1911, which shows an increase of 214,019 short tons. The number of men employed in the coal and lignite mines of the State in 1912 was 5127, compared with 5333 in 1911. In 1912 each man worked an average of 230 days, compared with 226 days in 1911. The coal mines of the State were practically free from labor troubles in 1912. There were no fatal accidents underground in the coal or lignite mines in Texas in 1912, though one man was killed in the shaft, and one on the surface. The death rate was the lowest in the country with the exception of North Dakota.

The value of the clay product in the State in 1912 was $2,886,068, an increase of $226.149 over 1911. The principal product was common brick.

PETROLEUM. Texas oil fields comprise a part of the Gulf oil fields, which include the fields of Texas and Louisiana. The production in Texas in 1912 was 11,735,057 barrels, compared with 9,526,474 barrels in 1911; an increase of over 23 per cent. Of the production of 1912, 6,459,528 barrels came from the coastal fields, and 5,275,529 barrels from the northern fields. The interest centred in 1912 in the high-grade oils found in the Electra fields in Wichita

County, and the Petrolia field in Clay County on the northern edge of the State.

TRANSPORTATION. The mileage of steam railroads in the State on June 30, 1913, including main lines, branches, and spurs, amounted to 15,283 miles, compared with 14,940 miles on the same date in 1912.

EDUCATION. The total number of children of school age in the State on September 1, 1912, numbered 1,017,133, of whom 812,896 were white and 204,237 were colored. There were 79,491 Mexican children and 29,345 Germans.

FINANCE. The report of the State treasurer for the fiscal year ending August 31, 1912, showed a cash balance at the beginning of the year of $413,124. The receipts for the fiscal year amounted to $18,119,072, and the disbursements to $17,963,122, leaving a balance on hand on September 1, 1912, of $793,417. The chief sources of revenue are from taxation and the chief expenditures are for education and the support of State institutions.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions under the control of the State include the State Blind Institute, the State Deaf and Dumb Institute, the State Lunatic Asylum, the Southwestern Insane Asylum, at San Antonio; the North Texas Insane Sanitarium, at Terrell; the Confederate Home, at Austin; the Deaf, Dumb, and Blind Institute, at Austin; the Epileptic Colony at Abilene; the State Orphans' Home, at Corsicana, Texas; the State Industrial School for Boys, at Gatesville; the Confederate Women's Home, at Austin; and the State Tuberculosis Sanitarium, at Carlsbad.

POLITICS AND GOVERNMENT. The legislature met in 1913 and the most important measures enacted will be found in the paragraph *Legislation* below. There was no election for State officers during the year as the term of Governor Colquitt does not expire until January 1, 1915. The next State election will be held November 3, 1914. The resignation of Senator Bailey, in December, 1912, made it necessary to delay the appointing of a successor until the legislature should take action. The governor on January 4 appointed R. M. Johnston, editor of the Houston *Post*, to fill out the unexpired term. On January 29 Morris Sheppard was elected United States senator. The legislature, on February 8, ratified the constitutional amendment providing for the direct election of senators. There was great uneasiness along the border of the State during the year as a result of conditions in Mexico. Incidents connected with this situation are mentioned in the article MEXICO. There were heavy floods in the State in October and December. On October 2 a flood in the southern part of the State caused the death of 12 persons and damaged property and crops to an estimated amount of more than $50,000,000. In December, river floods due to heavy rains caused much loss of life and property. Many hundreds of persons were drowned, and there was a property loss of over $6,000,000. It was estimated that 20,000 persons lost their homes. The Trinity, Brazos, and Colorado rivers rose above their banks, and many smaller streams were swollen. In a district 200 miles long and 100 miles wide all the lowlands were under water. At Fort Worth a levee was destroyed by dynamite to save a bridge. Many lives were saved by the action of telephone girls who refused to leave their switchboards, although menaced by the rising waters.

LEGISLATION. Among the important measures passed were the following: Laws for suspended and indeterminate sentences for criminal cases, and parole of convicted persons; amendments to the community property law; a measure providing for presidential primaries in the State; an act creating a bureau of child and animal protection; an eight-hour day for workmen on public works; a law incorporating a rural credit association; a measure providing a 10-hour day and 54-hour week for women in certain employments; several laws relating to tuberculosis; a measure permitting cities of less than 5000 inhabitants to adopt a commission form of government; and an act providing for the submission to the people of a constitutional amendment providing for the initiative and referendum. See also LIQUOR REGULATION.

STATE GOVERNMENT. Governor, Oscar B. Colquitt; Lieutenant-Governor, Will H. Mayes; Secretary of State, F. C. Weinert; Attorney-General, Benjamin F. Looney; State Treasurer, J. M. Edwards; Comptroller, W. P. Lane; Superintendent of Public Instruction, W. F. Doughty; Land Commissioner, J. T. Robinson; Commissioner of Agriculture, Edward R. Kone —all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Thomas J. Brown; Associate Justices, N. Phillips and W. E. Hawkins; Clerk, F. T. Connerly —all Democrats.

STATE LEGISLATURE, 1913. Democrats: Senate, 30; House, 108; joint ballot, 138. Republicans: Senate, 1; House, 1; joint ballot, 2. Democratic majority: Senate, 29; House, 107; joint ballot, 136.

The names of senators and representatives to Congress will be found in the article UNITED STATES, section *Congress*.

TEXAS, UNIVERSITY OF. A State institution for higher education, founded at Austin, Tex., in 1883. The total enrollment in all departments of the university in 1912-13 was 2250. The faculty numbered 130, which does not include tutors and student assistants. There were no noteworthy changes in the faculty during the year and no important benefactions were received. The institution is supported almost entirely by State appropriations. The productive funds amount to about $2,000,000, and the total income to about $625,509. The library contains about 80,000 bound volumes and about 30,000 pamphlets.

TEXAS FEVER. See VETERINARY SCIENCE.

TEXTILE MANUFACTURING. The various textile industries managed to hold their own during the year 1913 despite the agitation of the tariff and business disquiet. The tariff on wool was to come into effect January 1, 1914, reducing the duty materially. (See TARIFF.) While the American mills manufacturing wool and worsteds had been able to supply the market for 1913 and 1914, yet some fear was manifested whether this could be continued, and many manufacturers were making careful examinations of their plants and providing new and improved equipment in order to reduce the cost to the lowest possible point and thus compete with European manufacturers. In the cotton industry it was the consensus of opinion that Americans could hold their own without difficulty except in the highest grade of goods.

According to the annual statistics of new mill construction the *Textile World Record* of Boston reported a construction for 1913 of 277 new plants, as compared with 265 in 1912.

In the cotton industry the tendency during the year was toward strengthening existing organizations and extending and improving old established plants rather than toward launching new enterprises. The location of new cotton mills in 1913 was characterized by a wider distribution of the industry, and this was welcomed as indicating a tendency that should be encouraged in order to check the evils of industrial concentration. This is shown in the accompanying table:

NEW COTTON MILLS

	No.	Spindles	Looms
New England States:			
Maine	1	75,000	2,000
Massachusetts	3	......	6
New Hampshire	1	......	50
Rhode Island	2	......	.....
Total	7	75,000	2,056
Southern States:			
Alabama	3	45,000	1,200
Georgia	1	20,160	700
North Carolina	8	90,600	1,280
South Carolina	1	20,000	500
Virginia	1	75,000	2,200
Total	14	250,760	5,880
Middle States:			
Arkansas	1	7,000	104
Pennsylvania	5	......	72
Total	6	7,000	176
Grand total	27	332,700	8,112

New woolen and worsted mills constructed in 1913 totaled 24, as compared with 23 in 1912 and 17 in 1911. These were distributed as follows:

New woolen and worsted mills, 1913—New England: Connecticut, 1; Maine, 1; Massachusetts, 4; Rhode Island, 1; Vermont, 1. Middle States: New York, 2; Pennsylvania, 11; Indiana, 1. Western States: California, 1; Wisconsin, 1. Total, 24.

The number of new knitting mills was the largest on record and was largely due to the substitution of knitted articles of outer apparel for the products of clothing manufacturers. The total for 1913—142 new mills—may be compared with 112 in 1912, and 113 in 1911.

New knitting mills, 1913—New England: Connecticut, 2; Massachusetts, 4; New Hampshire, 1. Middle States: Maryland, 1; New Jersey, 8; New York, 18; Pennsylvania, 59. Western States: California, 4; Illinois, 3; Indiana, 3; Michigan, 3; Ohio, 3; Michigan, 3; Ohio, 3; Oklahoma, 1; Oregon, 1; Utah, 2; Wisconsin, 4. Southern States: North Carolina, 17; South Carolina, 1; Tennessee, 6. Total, 142.

In the silk industry 54 new mills were reported in 1913, as compared with 47 in 1912, and 38 in 1911. The distribution by States and products follows:

New silk mills, 1913—Connecticut, broad silks, 1; braids, 1; Illinois, neckwear, 1; Massachusetts, braids, 1; New Hampshire, ribbon, 1; New Jersey, broad silks, 10; throwing, 6; ribbons, 5; New York, broad, 2; trimmings, 5; Pennsylvania, broad, 5; ribbon, 7; throwing, 5; raw, 3; Rhode Island, broad silks, 2; Virginia, broad silks, 2; West Virginia, throwing, 1. Total, 54.

TEXTILESE. See CHEMISTRY, INDUSTRIAL, *Jute Substitutes.*

THEATRE. See DRAMA, and sections on drama under FRENCH LITERATURE, GERMAN LITERATURE, ITALIAN LITERATURE, RUSSIAN LITERATURE, SCANDINAVIAN LITERATURE, and SPANISH LITERATURE.

THEOLOGICAL SCHOOLS. See UNIVERSITIES AND COLLEGES.

THERMIONS. See PHYSICS.

THOMAS, CHARLES SPALDING. An American public official elected in 1913 United States senator (Democrat) from Colorado. He was born in Darien, Ga., in 1849, but early in his boyhood removed to Michigan. He studied law in the University of Michigan, receiving his degree in 1871. In the same year he began the practice of law in Denver, where he continued until 1879, when he removed to Leadville, remaining until 1885. In that year he returned to Denver, where he became senior member of the law firm of Thomas, Bryant, and Lee. From 1884-96 he was a member of the Democratic national committee. In 1899 he was elected governor of Colorado and served in this office until 1901.

THOMPSON, WILLIAM HOWARD. United States senator (Democrat) from Kansas. He was born in Crawfordsville, Ind., in 1871. In 1880 he removed to Kansas and settled in Nemaha County. He has been active in the affairs of the State from early manhood, and has filled various positions of honor. He is the author of a number of legal articles on judicial reform. He was elected district judge at the age of thirty-four years, and held this position when he was elected senator.

THUREAU-DANGIN, PAUL MARIE PIERRE. A French historian, died February 24, 1913. He was born in Paris in 1837. He received his early education in Paris and practiced law in that city for several years. He first became known as a writer through his contributions to *Le Français.* His first historical book was a treatise on Poland. This was followed by more important works which treat of the periods of the Revolution, the Restoration, and the reign of Louis Philippe. As a historian he was a conservative and a monarchist. In 1893 he was made a member of the French Academy, and the last of his works, *History of the July Monarchy,* was twice awarded the Gobert prize by the Academy, as the various parts of the work, which is in several volumes, appeared. He was elected perpetual secretary of the Academy. In addition to the works already mentioned, he wrote: *Paris During the French Revolution* (1872); *Royalists and Republicans* (1874); *The Church and State under the July Monarchy* (1879); *The Liberal Party under the Restoration* (1876).

THWAITES, REUBEN GOLD. An American historian and educator, died October 22, 1913. He was born in Dorchester, Mass., in 1853, and was educated in the common and high schools of that city. He took post-graduate courses at Yale University in 1874-75. In 1876 he became managing editor of the *Wisconsin State Journal,* holding that position until 1886. From the latter year until his death he was secretary and superintendent of the State Historical

Society of Wisconsin. He devoted part of his historical researches to the periods of the settlement of the Middle West and of the French discoveries. He edited in seventy-three volumes a monumental work, *The Jesuit Relations*, and *Early Western Travels* in twenty volumes. These compilations contain material of the greatest value to the historian. In addition to his editorial work he organized the great historical library at Madison, Wis. He was the author of: *Down Historic Waterways* (1888); *The Story of Wisconsin* (1890); *The Colonies, 1492-1750* (1891); *On the Storied Ohio* (1897); *Father Marquette* (1902); *Daniel Boone* (1902); *France in America* (1905); and numerous monographs on the history of new France and the Middle West. He edited in addition to books named above: The *Wisconsin Historical Collections* (from vol. xi. to vol. xix., 1888-1911); *Chronicles of Border Warfare* (1895); *Original Journals of Lewis and Clark* (1905); *Revolution on the Upper Ohio* (1908); *Frontier Defenses on the Upper Ohio* (1911).

THYROID EXTRACT. See Epilepsy.

TIBET. A Chinese dependency in central Asia. The area is estimated at 756,000 square miles and the population at 2,000,000. Lhasa, with an estimated population of from fifteen to twenty thousand, is the capital and the home of Buddhism. Tibet imports from India cotton and woolen goods and grain, in exchange for borax, salt, and musk; wool and ponies are important exports. Total trade, 1912-13, about £281,000. Gold is said to exist in workable quantities. The country has been the object of numerous conventions between Great Britain and China, Tibet, and Russia. The Dalai Lama returned in June, 1912, to Lhasa after an absence of a year in India, during which time he had been declared deposed by China. Great Britain interfered with the expedition of Chinese troops to reduce the Tibetans to subjection, and the British minister at Peking protested against Chinese interference in the internal administration of Tibetan affairs. The Chinese garrison stationed at Lhasa was withdrawn, and by March, 1913, all Chinese officials had left Tibet. The future character of Chinese-Tibetan relations was the subject of a conference between representatives of the British, Chinese, and Tibetan governments, who met at Simla in October, 1913.

TICK, Cattle. See Veterinary Science under *Texas Fever* and *Cattle Tick*.

TIME, Standard. See Astronomy, under section so entitled.

TIME SIGNALS. See Wireless Telegraphy.

TIMOR. The largest island of the Lesser Sunda group, divided between Portugal and the Netherlands. The estimated area is 12,593 square miles, of which 7330 belong to Portugal; population, 400,000, of whom 200,000 are Portuguese subjects. Acting governor of Portuguese Timor, Capt. Pimenta de Castro, with headquarters at Dilli.

TINWORTH, George. An English artist, died September 12, 1913. He was born in 1843 in Berkshire. In 1861 he entered the Lambeth School, and the academy in 1864. In 1866 he entered the Lambeth pottery, and became widely known as a modeler in terra cotta, receiving many medals for his work, and a grand prize at the St. Louis Exposition in 1904. Among his best-known productions were panels made for churches and other buildings. He wrote *From Sunset to Sunset* (1907).

TITANIC. See Safety at Sea.

TOBACCO. The tobacco crop of 1913 was the most valuable one ever raised in the United States, exceeding by 30 per cent. the average value of the five preceding years. The average farm price of the crop, 12.8 cents per pound, was the highest since 1864. The quantity of production, however, was slightly under the five-year average and had been exceeded by three former crops. The final estimate of the United States Department of Agriculture placed the production at 953,734,000 pounds, as compared with 962,855,000 pounds in 1912. The estimated value was $122,481,000, as compared with $104,063,000 in 1912. Kentucky, North Carolina, and Virginia, in the order named, led in the production of cigar tobacco. In Georgia and Florida the yield per acre was better than in 1912 and the quality the best for several years. In all the other districts the yield per acre was less than in the previous year and the quality not up to the usual standard of a good crop, except in the Miami Valley of Ohio. The New England crop gave a smaller percentage of wrapper than usual. The total production of cigar tobacco was estimated at 183,350,000 pounds, valued at $24,075,000, both the quantity and the value being less than in 1912.

The estimated total production of chewing, smoking, export tobacco, and snuff was 763,124,000 pounds, having a value of $97,466,000, an increase of 4 per cent. in amount and of 28.4 per cent. in value. The largest increase was in the bright districts of Virginia, North Carolina, and South Carolina. The burley district had a smaller production with poorer quality than the 1912. The sun-cured district of Virginia produced a fine crop, which was much reduced in quality and value by mould in the barns.

During the fiscal year 1913 the internal revenue collections from manufactured cigars, tobacco, etc., amounted to $76,789,424, as compared with $70,590,151.60 in 1912, which was the largest ever received to that date. The commissioner's report showed a steady growth in the manufacture of tobacco products. Tax was collected on 7,699,037,543 cigars, an increase of nearly a half million in number over 1912; on 1,033,778,160 little cigars, a decrease of about 60 millions; on 14,294,895,471 cigarettes, an increase of over 3 billion; on 33,209,468 pounds of snuff, an increase of over 3 million pounds; and on 404,362,620 pounds of chewing and smoking tobacco, an increase of over 10½ million pounds. The above figures include 164,871,400 cigars from Porto Rico and nearly 6 million cigarettes, and from the Philippines over 100 million cigars and over 14 million cigarettes. The phenomenal number of cigarettes manufactured in the fiscal year 1912 was more than maintained in 1913. The quantity of leaf tobacco used in the production of tobacco, snuff, cigars, and cigarettes was 547,357,134 pounds. There was exported during the fiscal year 4,478,657 pounds of manufactured tobacco and snuff.

The net receipts from the tobacco tax in the German empire increased from $16,630,000 in 1906-07 to $35,866,000 in 1910-11. The *per capita* duties and taxes on tobacco increased 105 per cent. in that time and still further in

1911-12. On the other hand, the consumption decreased. In the fiscal year 1911-12 9,382,400 cigarettes were manufactured, more than half being made in Saxony. A tobacco combine was formed in Russia with a capital of $12,000,000. The company was an English one, in which Russian, French, and English capital was interested.

A treatise on *Tobacco Marketing in the United States*, by E. H. Mathewson, was published by the United States Department of Agriculture during the year 1913.

TOGO. A German west African protectorate occupying an area estimated at 87,200 square kilometers (33,668 square miles) between Dahomey and the Gold Coast. Capital and chief port, Lome. The population is estimated at 1,000,000 natives; whites, January 1, 1912, 372. Imports, 1911, 9,620,000 marks (Germany, 3,814,000); 1910, 11,466,000. Exports, 1911, 9,318,000 marks (Germany, 6,076,000); 1910, 7,222,000. Chief articles of export, values in thousands of marks for 1911: Palm kernels, 3578; palm oil, 1688; rubber, 833; cotton, 554; animals, 311; cacao, 174; corn, 174. Vessels entered, 275, of 567,000 tons. Railways in operation at the end of 1912, 323 kilometers (201 miles)—Lome-Anecho (Little Popo), 44 kilometers; Lome-Polime, 119; Lome-Atakpame, 160. The budget for 1913-14 balanced at 4,057,136; for 1912-13 at 3,175,510. Governor in 1913, Duke Adolf Friedrich of Mecklenburg-Schwerin.

TOKUGAWA, PRINCE KEIKI. Fifteenth and last of the Shoguns of Japan, died November 21, 1913. He was born in 1837, the seventh son of Nariaki, Prince of Mito. He inherited the authority which had been gained for the Tokugawa family by the first Shogun of that branch, Iyeyasu, who reigned from 1603 to 1605. The power of the family began to crumble after the abdication of Iyenari, the eleventh Shogun of the house, in 1837. He had reigned for fifty years and was succeeded by his son Iyeyashi, who was followed by his brother Iyesada (1853-58). When the latter died, the prince of Mito put forward his son Tokugawa Keiki for the vacant Shogunate, but another and much younger member of the ruling house was preferred. During the rule of this Shogun Iyemochi, Keiki, his unsuccessful rival, became minister of justice and later commander-in-chief. In 1866 he came into the succession as the fifteenth Tokugawa Shogun. Having been adopted by the Hitotsubashi family and assuming a new name on becoming Shogun, he was often known as Hitotsubashi Yoshinobu. Shortly after his accession, Kemei, the 120th emperor, died, and was succeeded by the late Emperor Mutsuhito. The time was a critical one in the history of Japan. The influence of the court of Kyoto was steadily increasing, and that of the Shogun's government as steadily decreasing. The latter's authority had been successfully defied by the Choshin clan. Keiki, who had from the first shown great reluctance to accept the position of Shogun, was by temperament and character ill fitted to play the part of a ruler in stormy times, and soon after his accession, on account of opposition to his government and the defection of several clans, he declined to continue the struggle, and in the autumn of 1869 resigned. The action of the ruling clans at Kyoto led to the withdrawal of his resignation, and an open rupture between the two governments took place. The civil war which followed was of short duration. The Shogun submitted to the Mikado's troops in the spring of 1868, and was allowed to settle in the town of Shidzuoka. In later years he was restored to imperial favor, and received the title of prince in the new order of nobility. A residence in Tokyo was assigned to him, and there he lived quietly until his death, taking no part in public affairs.

TONGA (or FRIENDLY) ISLANDS. A group of islands in the south Pacific, constituting a British protectorate. Area, 390 square miles. As estimated in 1910 the population was 21,695, including about 600 whites; at the end of 1912, natives numbered 22,527. Nukualofa, on Tongatabu, is the capital. Imports and exports of merchandise in 1910 were valued at £160,543 and £245,646; in 1911, £182,122 and £239,404. Revenue and expenditure in 1911-12, £50,856 and £50,012. Native king, George Tubou II. (since 1893). British agent and consul, Henry Eugene Walter Grant (since 1912).

TONGKING. A state (the northernmost) of the French colony of Indo-China (q.v.), lying between China and Annam. The country near the coast is low, flat, and fertile; to the north and east are mountains and high plateaus. Innumerable streams furnish water and transportation facilities. The railway which connects Yunnan with the sea and the navigable Song-koi (Red River) are the main commercial avenues. The climate, though not unhealthful on the whole, is excessively hot during the wet season; typhoons are frequent. The principal productions are rice (two crops annually), silk (the principal native manufacture and a main article of export), corn, cotton, sugar-cane, coffee, jute, indigo, rubber, cinnamon, gum lac, etc. The forests yield valuable timbers and essences; the mines are unimportant, though rich minerals are believed to exist in the mountains. The European manufactories are cotton mills, distilleries, brick works, tobacco and match factories. The trade is included with that of French Indo-China. The local budget for 1912 balanced at 8,341,017 piasters. The French resident in 1913 was M. Destenay. Hanoï is the capital, as well as the capital of French Indo-China.

TORNEY, GEORGE HENRY. An American surgeon and public official, died December 27, 1913. Born in Baltimore in 1850, he was educated at Carroll College, and studied medicine at the University of Virginia, taking his degree in 1870. In the following year he was appointed assistant surgeon in the United States navy, but resigned in 1895 to accept an appointment as first lieutenant assistant surgeon in the United States army, where he rose to be colonel of the medical corps in 1908, and surgeon-general in 1909, which position he held until his death. He was particularly well known for his campaign against typhoid fever in army camps.

TOWN PLANNING. See CITY PLANNING.

TOWNSEND, JAMES MULFORD. An American lawyer and educator, died October 31, 1913. Born in New Haven, Conn., in 1852, and graduated from Yale College in 1874, he took the degree of LL. B. in 1876 at Columbia University. In the same year he engaged in practice in New York City. He was one of the best-known authorities on corporation law, and was lecturer on the transfer of monetary securities at the Yale law school from 1887 to the year of his death.

TRADE UNIONS. Recent years have been full of events of great interest for organized labor. There has been a notable amount of radicalism in the labor movement. The doctrines of Syndicalism (q.v.), represented in the United States by the Industrial Workers of the World (q.v.), continued to be preached and caused revolutionary activities in both Europe and America. The movement toward industrial unionism was a chief characteristic of the developments of 1913. Particularly in Germany and Great Britain was there evidence that all the different unions engaged in related trades were drawing closer together. General strikes, while not frequent, were therefore rendered more probable and more threatening. (See STRIKES and LOCKOUTS.) At the Trade Union Congress held at Manchester, England, and attended by 557 delegates representing 2,232,446 members, it was estimated that the total number of trade unionists in Great Britain was 3,010,000; Germany, 3,061,000; France, 1,029,000; Belgium, 199,000; Holland, 154,000; Norway, 54,000; Denmark, 128,000; and United States, 2,500,000.

The principal trade union organization of the United States is the American Federation of Labor, for which see LABOR, AMERICAN FEDERATION OF. In that article is also described the progress of the famous contempt case growing out of an injunction issued in the Buck's Stove and Range case against officers of the federation. For the outcome of the case against the United Hatters, known as Loewe vs. Lawler, see BOYCOTT. Below is a description of the efforts to exempt trade unions from the operation of the anti-trust law, and a statement of the developments in the dynamite cases which caused such agitation in 1912 and 1913.

EXEMPTION OF TRADE UNIONS AND FARMERS' ORGANIZATIONS. A piece of legislation calling forth quite opposite but often impassioned opinions was the inclusion in the sundry civil appropriation bill of a proviso, whereby no part of the sum of $300,000 appropriated for the enforcement of anti-trust laws was to be used to prosecute "any organization or individual for entering into any combination or agreement having in view the increasing of wages, shortening of hours, or bettering the conditions of labor, or for any act done in furtherance thereof, not in itself unlawful"; moreover, no part of this sum could be used to prosecute "associations of farmers who cooperate and organize in an effort to and for the purpose to obtain and maintain a fair and reasonable price for their products."

A provision similar to this had been included in an appropriation bill sent to President Taft in the last days of his administration. He sent to Congress a veto message on March 4, in which he severely condemned the provision as "class legislation of the most vicious sort." He pointed out that the section was subtly worded so that, though ostensibly designed to permit beneficent activities, it also permitted "conspiracy to destroy by force, violence, or unfair means any employer or employe who failed to conform with organization requirements." He pointed out that a similar provision had failed to pass the Sixty-first Congress, it being condemned as an attempt to legalize the secondary boycott.

But on April 13 President Wilson was reported to have urged the repassage of the vetoed proviso. It was stated that he did "not believe that the anti-trust act should be enforced against labor unions or coöperative associations of farmers." Immediately upon the reintroduction of the bill containing this "rider" a storm of protest arose from newspapers and chambers of commerce. Former Senator Edmunds and others called attention to the history of the efforts to secure exemption of labor and agricultural associations from the Sherman act. Even at the time this law was under discussion in Congress preceding its enactment an amendment exempting these associations was introduced in the Senate and, after spirited debate, was rejected. On the other hand there was a considerable body of popular feeling that the anti-trust law had not been intended to apply to labor or farmer organizations. This was based historically on the fact that the original act passed the Senate with an amendment offered by Senator Sherman himself and supported by Senator Hoar, exempting labor and farmer organizations. But the bill was later reported out of the committee on the judiciary without this amendment, and thus enacted.

The rider proviso passed Congress with large majorities and some weeks later, on June 23, was signed by President Wilson. The President, however, stated at the time that, had he been able to separate this item from the remainder of the bill, he would have vetoed it "because it places upon the expenditures a limitation which is in my opinion unjustifiable in character and principle." He also pointed out that other appropriations to the Department of Justice were sufficient to enable it to enforce the anti-trust law as in the impartial judgment of that department its true and just meaning demanded.

Somewhat later it was made evident that a strong effort would be made by the American Federation of Labor to have the exemption made permanent by amending the anti-trust law, and that the manufacturers' organization would make a strenuous fight against such action.

The trade unions had been strongly moved to secure this exemption because of the decisions of the courts in the famous Danbury Hatters' case or Loewe vs. Lawlor. (See BOYCOTT.) The situation thus confronting American unions was similar to that confronting English unions following the Taff Vale case, in which union funds were made liable for damages done by unions during trade disputes. The English unions likewise secured exemption from Parliament. Another cause of anxiety on the part of the unions was the suit against nineteen officials of the United Mine Workers for $750,000 growing out of a West Virginia strike. These men were charged with conspiring with coal operators in other unionized fields to force the West Virginia operators to unionize their mines. The indictment was brought by the local Federal attorney without the knowledge of the Attorney-General.

STRUCTURAL BRIDGE AND IRONWORKERS'

UNION. After a three months' trial at Indianapolis the officers of this union were convicted late in December, 1912, of conspiracies to transport dynamite and nitro-glycerine on passenger trains from one State to another, and of aiding in the destruction of life and property thereby. In the trial there were 40 defendants; 38 were found guilty, and of these all but two were officers, members of the executive board, or business agents of this union. The president of the union, Frank M. Ryan, was sentenced to seven years in the Federal penitentiary at Leavenworth; eight others to six years; two to four years; twelve to three years; four to two years; six to one year and one day; and five were released under suspended sentences. This trial was the culmination of a seven-years' warfare of the union upon employers and contractors of the National Erectors' Association who refused to institute a closed shop. From 1905 to 1911 there occurred in erection work 102 cases of actual or attempted destruction of bridges and other buildings under construction; and from December, 1905, to June, 1912, there were 96 assaults on foremen and men in non-union shops. The country was aroused in October, 1911, by the destruction of the Los Angeles *Times*, when twenty-one were killed. Following the incarceration of the guilty, the trade unions of the country undertook to raise a sum approximating a million dollars to bail them out. Many of them were thus released. Among these was President Ryan, who, in March, was reëlected president at the union's convention in Indianapolis. This act was widely condemned. At the time of the trial it had been continually reiterated throughout the country that the union as such was not at the bar of justice, but only criminal officials; but Ryan's reëlection transferred much of the odium to the 12,000 members. All of the guilty, except Herbert S. Hockin, who had greatly assisted Detective Burns in the McNamara case, and one other appealed to the Circuit Court of Appeals of the United States. On January 6, 1914, the sentences were affirmed by that court in the cases of 24 of the convicted; in 6 cases the convicted were remanded for another trial.

On October 2 George E. Davis, an ironworker, was arrested in New York on the charge of being a party to a dynamite conspiracy. He confessed that he was responsible for several explosions on non-union structural work and declared that he had been assisted by Harry Jones, the secretary-treasurer of the Structural Ironworkers' Union. Jones was arrested and released on $10,000 bail. On December 16 at Indianapolis Davis pleaded guilty to a charge of having conspired to transport explosives illegally; Jones pleaded not guilty, but his lawyer asked permission to withdraw the plea later if deemed advisable.

GREAT BRITAIN. The principal features of the trade-union movement in Great Britain in 1913 were the tendency toward the formation of larger associations, the increasing demand for an eight-hour day, and the great frequency with which both organized and unorganized labor put forward demands for the establishment of minimum-wage rules. Perhaps the most significant amalgamation was the fusion of three of the four great railway unions into the National Union of Railway Men, with a membership of 180,000. The locomotive engineers and firemen did not join this amalgamation. The National Union set forth as its immediate programme a minimum wage of $7.50 for all railway workers and an eight-hour working day. Another very considerable amalgamation was that in the dyeing trades. Some fifteen separate unions were brought together into one large organization embracing the dyeing, calico printing, bleaching, and finishing trades.

The tendency toward the union of all workers of an industry was emphasized at the annual council of the National Transportation Workers' Federation. President Harry Gosling declared that if the federation was to be responsible it must control all transport workers. This would require a single national executive council with a substantial central fund. The importance of such amalgamation was shown by the demands of the British seamen, which were supported by the transport workers. The seamen demanded a national conciliation board to fix wages and conditions, a new manning scale, and the exclusion of Chinese seamen from British ships. The affiliation of seamen and transport workers lent great force to these demands.

The question of an eight-hour day for all workers was actively discussed as a practical proposition at several trade-union conferences. The parliamentary committee of Trade Union Congress presented various alternative proposals bearing on the question to its constituent organizations. It was proposed by a leading official that the active movement to enforce the demand should include "direct action," whereby union men would cease work at the end of eight hours, instead of continuing for nine and ten. In January the Labor party endorsed a bill limiting to eight the hours in the cotton industry; later, bills were presented in Parliament limiting to eight the hours on railways and in bakeries; and in all the industries in general.

The United Kingdom Employers' Defense Union was formed by employers to protect themselves against strikes and the losses attendant thereto. It proposed to raise $250,000,000 as a defense fund. It was reported in December that large subscriptions were being made with the understanding that actual payments by members will be made *pro rata* and will not exceed 7.5 per cent. of the subscription in any one year. The union was registered as a trade union in order to secure legal advantages.

GERMANY. There are three principal groups of trade unions in Germany, the General Federation, the Christian, and the Hirsch-Duncker. Besides these there are Roman Catholic and Protestant unions with approximately 200,000 members, patriotic unions, and yellow unions. These last two are numerically small. The General Federation had, on January 1, 1913, 2,559,781 members, an increase of 6.7 per cent. over the preceding year. The groups reporting more than 100,000 members each were the following: Metal, 596,839; building, 463,375; transport and retail trade, 247,518; woodworking, 213,761; factory workers (general), 207,597; textile, 142,634; food, drink, and tobacco, 124,513; clothing, 114,132; mining, 114,062; and printing, 100,345. The Christian Trade Union Federation had at the same time a membership of 350,930; while the Hirsch-Duncker membership numbered approximately 110,000. The movement toward industrial unionism, which has been very marked in Anglo-Saxon countries during recent years, manifested itself in Germany during the year by great growth of the General Building Trades Union, the Metal Workers' Union, and the Tobacco Workers' Union, all three of which are on the industrial basis. Several other amalgamations were in process or in contemplation.

The financial condition of the General Federation was most excellent. The total income, excluding the unions of domestic servants and of agricultural laborers, was $19,103,000 in the year 1912. Of this, 94 per cent. came from membership dues, assessments, and initiation fees. Total expenditures were $14,549,000. Although income increased nearly $2,000,000, expenditures increased only $250,000. The aggregate reserve funds available on June 1, 1913, were $19,238,000. The principal item of expenditure was labor disputes, for which $3,276,000 were expended in 1912. Other items of expense were as follows: Sick benefit, $2,723,000; unemployment benefit, $1,843,000; traveling benefit, $281,000; death benefit, $281,000; invalidity benefit, $126,000; distress benefit, $123,000; and removal benefit, $97,000. Not all of these benefits are paid by all of the unions. Thus, while unemployment, sick, death, and distress benefits are paid by practically all, the invalidity benefit is paid only by the printers and lithographers. As among the English trade unions, there has been in Germany a movement for fusion into industrial unions. The Metal Workers' Union is the largest of the German industrial bodies, comprising on January 1, 1913, a total membership of 561,547. Its income in 1912 was $4,270,000 and its expenditures $3,010,000; the funds on hand were $2,730,000. In 1912 it paid $2,000,000 in benefits, including strike and lockout, victimization, traveling, removal, unemployment, sick, death, and some other minor ones.

The Buildings Trades Union is the second largest industrial union, having on January 1, 331,165 members, including bricklayers and masons, hod carriers and building laborers, plasterers, excavation, cement, and concrete workers, tire layers, and terrazzo workers. Its net income in 1912 was $2,253,000; expenditures, $1,059,000; and funds on hand, $3,713,000. Other large industrial organizations were the Woodworkers' Union, with 196,810 members; and the Union of Brewery Workers and Millers, with 50,739 members.

SWITZERLAND. The Swiss Trade Union Congress met at Zürich September 13-15. The programme throws considerable light upon the problems of current interest in Switzerland, and at the same time reveals the great similarity in the trade union and labor problems of all western nations. Following a discussion of the state of the trade-union movement in Switzerland, the sessions took up the following topics: The organization of badly paid or down-trodden workers in unorganized trades; unemployment insurance through trade unions; trade-union attitude toward juvenile organizations; the relation of the trade-union movement to tariff agreements; attitude toward general strikes; and the attitude of the unions toward pending legislation. See also INDUSTRIAL WORKERS OF THE WORLD.

TRADE UNIONS BILL. See GREAT BRITAIN, *Work of Parliament*.

TRANSMISSION OF ELECTRIC POWER. See ELECTRIC POWER, TRANSMISSION OF.

TRANSVAAL. One of the four original provinces of the Union of South Africa (q.v.). Pretoria, the capital of the union, is also the seat of the provincial government. Population of Pretoria (census of May 7, 1911), 48,607 (with suburbs, 57,674); Johannesburg, 237,104; Krugersdorp, 55,144; Germiston, 54,325; Boksburg, 43,628; Benoni, 32,560; Premier, 12,608. During the year three railway lines, aggregating 243 miles, were opened. Administrator (1913), J. Rissik. See SOUTH AFRICA, UNION OF, for area, population, etc.

TRAVEL. See LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; and GERMAN LITERATURE.

TRENGANNU. A native state under British protection on the east coast of the Malay Peninsula. Area (estimated), 6000 sq. miles; population (1911), 154,073, of whom 149,379 were Malays. Capital, Kuala Trengannu (13,991 inhabitants). Imports (from Singapore, 1911), SS$706,737; exports, SS$1,811,420. British agent (1913), W. D. Scott.

TRINIDAD AND TOBAGO. A British colony composed of two islands—Trinidad, 1754 sq. miles; and Tobago, 114 sq. miles. Total population (1911), 333,552, of whom 86,373 were East Indians. East Indian immigration is conducted under the control of the government (3120 in 1911-12). Imports in 1911, £5,018,848 (£3,343,011 in 1910); exports, £4,769,486 (£3,467,588). Revenue, 1911-12, £950,744 (£948,383 in 1910-11); expenditure, £959,551 (£927,033). Debt (March 31, 1912), £1,047,793. Miles of railway (all government-owned), 81½. Extensions were begun September 30, 1911 (Tabaquite-Poole), and February 26, 1912 (San Fernando to Siparia). The capital is Port of Spain (59,658 inhabitants). Governor in 1913, S. W. Knaggs (acting).

TRINITY COLLEGE. An institution for higher education founded at Hartford, Conn., in 1883. The enrollment in the college in the autumn of 1913 was 259. The faculty numbered 28. During the year Stanley L. Galpin, Ph. D., was appointed professor of romance languages, and Frederick W. Carpenter, Ph. D., was appointed professor of biology. The most notable gift of the year was the library and administration building from J. Pierpont Morgan. The productive funds of the college amounted at the end of the year 1912-13 to $1,125,849, and the income to $87,770. The library contains 70,122 volumes, and 44,601 pamphlets. The president is F. L. Luther, LL. D.

TRIPOLI. A province (since November 5, 1911) of Italy, on the Mediterranean coast of Africa, bordered on the west by Tunis and Algeria, on the east by Egypt, on the southeast and south by the Sahara. Together with Cyrenaïca (or Bengazi, or Barca), Tripoli was taken from Turkey in the Turco-Italian War. Together Tripoli and Cyrenaïca now are called Libya. They cover an area estimated at 405,800 square miles, carrying a population of about a million. Tripoli (50,000 inhabitants) is the capital of Tripoli, Bengazi (30,000) of Bengazi.

No rivers flow through the country and the rainfall is frequently inadequate; only once in three or four years can a good harvest be looked for. The products and exports are ostrich feathers, ivory, skins, sponges, hides, esparto, and live animals. The imports, besides metals, manufactures, tea, beads, wines, and spirits, include articles for barter in Wadai, Bornu, and the western Sudan. A large Sudanese trade reaches the sea by caravan routes across the Sahara to Tripoli and Bengazi. Imports in 1912, 27,781,985 lire; exports, 4,028,520. Railways in operation, 87 kilometers; under construction, 230 kilometers. The branch railway to Suari-Beni-Aden was completed during the year.

The revenue is generally derived from tithes and from taxes on individual wealth. Lieutenant-General V. Garioni has been appointed governor for Tripoli, General Ameglio for Bengazi.

HISTORY. "The Treaty of Lausanne, signed on October 15, 1912, by delegates of Turkey and Italy, provided," to quote the 1912 YEAR BOOK, "for complete Italian sovereignty in Libya (i.e., Tripoli and Cyrenaïca) without formal recognition by Turkey; for the caliph's retention of free religious authority; for the reëstablishment of former diplomatic relations, etc." Some of the Turkish troops were withdrawn, in accordance with the treaty; yet others, disowned by the Ottoman government, remained to assist the fierce and fanatical Mohammedan tribesmen of the hinterland in their persistent attempts to resist and harass the Italians. The resistance was strongest in the highlands of Cyrenaïca and heavy fighting took place in the vicinity of Derna. On May 16, 1913, a battle at Sidi Garba, near Derna, cost the Italians 79 killed and 284 wounded. On June 19 another sharp engagement was fought at Attangi. In September an offensive campaign was inaugurated against the Arabs of the Merg highlands. The Arabs were defeated, but the victory cost the Italian force 30 men, including General Torelli, who was in command. General Bricola, who had hitherto directed the military occupation of Cyrenaïca, was succeeded in October by General Ameglio, who had shown great vigor in his administration of the Ægean islands in Italian hands.

The work of pacification proved less difficult in the western part of Libya than in the east. An insurrection of Berber tribesmen under Soliman-el-Baroni collapsed before the advance of General Leguio's troops and offered little obstruction to the expeditionary armies. A force of 1000 men left Tripoli (city) in April, and on April 28 reached Ghadames, where many sheikhs voluntarily took oaths of allegiance to the Italian government. Leaving a garrison at Ghadames, the column proceeded towards the oases of Ghat and Murzuk in the Fezzan. Brak, Aggar, and Megar were also occupied in December. Military operations in the interior of Libya were so much more extensive and expensive than had been anticipated, that not a few complaints were heard in Italy. The works of peace were also expensive. Breakwaters to improve the harbor at Tripoli were to cost almost $3,000,000, and harbor improvements at Bengazi another $1,500,000.

TROPICAL DISEASES. Endemic tropical dysphagia, or *mal de engasgo*, is an affection endemic in certain parts of Brazil, which is characterized by difficulty in swallowing, so constantly recurring that the individual finally dies of starvation. It seems to have receded before improved hygienic conditions, so that now it is encountered only in the remoter districts. The dysphagia occurs spasmodically; in the intervals all is apparently normal. The trouble seems to be a spasm of the cardia (the lower end of the œsophagus). Paranhos, who described the disease, was inclined to think that flour used almost exclusively in the regions where *mal de engasgo* was prevalent was the cause. This flour is made from the manioc, or cassava, of the euphorbia family, the root of which contains a juice which Boutron and Henry say is identical with hydrocyanic acid. Ingestion of the juice induces motor disturbances, dysphagia, convulsions, weakness of the heart, and arrest of the respiration. Roasting the root to make the flour expels all the juice, but when this is not properly done, this form of dysphagia is liable to follow. When other food was used no further cases developed. The American Society of Tropical Medicine began in July the publication of an official journal, called the *American Journal of Tropical Diseases and Preventive Medicine.* The journal is issued from New Orleans in connection with the School of Tropical Medicine of Tulane University, Dr. Creighton Wellman being editor-in-chief. Harvard University established a school of tropical medicine, the course of which was planned to extend over a period of six months, with Dr. Richard P. Strong in charge. See BERIBERI; LEPROSY; PLAGUE; SLEEPING SICKNESS; VITAL STATISTICS.

TRUST COMPANIES. These companies have experienced a very notable growth in recent years. According to the reports of the Comptroller of the Currency they numbered only 683 in 1905; but they increased to 1091 in 1910, and to 1515 in 1913. Their banking resources on June 4 of the latter year aggregated $5,124,920,000, or nearly double the amount of five years earlier. Their loans and discounts totaled $2,767,000,000, or slightly more than those of the 14,011 State banks, and nearly half as much as those of the 7473 national banks of the same date. Their resources also included $1,191,000,000 bonds and other securities. They have attracted immense individual deposits because of their great liberality in interest thereon, the aggregate in 1913 being $3,571,000,000. Loan and trust companies were distributed among the States as follows: Eastern, 513; Middle Western, 352; Southern, 318; New England, 195; Western, 69; Pacific, 68.

TRUSTS. In 1913, as during the immediately preceding years, marked attention was given to the solution of the trust problem in the United States. While there were no cases brought to conclusion of such importance as the Tobacco and Standard Oil cases of earlier years, cases involving as great financial and popular interest were under prosecution. Investigations by the Bureau of Corporations (q.v.) continued. The change of administration from Republican to Democratic brought no change in the effort to enforce the existing law. The new administration made it plain by various general utterances that it would attempt to deal by effective legislation with the concentration of financial and industrial control, but owing to the tariff and banking legislation it was not able to take up the trust problem before the close of the year. It was anticipated that the administration's legislation would follow in the main the lines laid down in the New Jersey anti-trust (Seven Sisters) laws, passed early in the year. There was also the general statement in the Democratic platform of 1912 demanding a "vigorous enforcement of the criminal law against trust officials." That platform in addition declared against holding companies, interlocking directorates, stock watering, and price discriminations. In his annual message President Wilson declared that the trust problem would be made the subject of a special message. He made it plain that no war on the trusts was contemplated; that obedience to the law was all that was desired, and this would be sought with the least possible disturbance of business. Following the voluntary separation of the American Telephone and Telegraph Company from the Western Union (see below) the President stated that the administration desired to aid in upbuilding all lawful business. Moreover, at the same time the American Sugar Refining Company, the New Haven Railroad, and other combinations opened negotiations to determine a basis for bringing their organizations within the law. As a result of these events a more optimistic tone was developed in business and financial circles.

For material of interest in connection with trusts other than the following, see BOYCOTT; BUREAU OF CORPORATIONS; FINANCIAL REVIEW; and TRADE UNIONS.

NEW JERSEY LAWS. The legislation attracting the widest attention during the year was the passage of the so-called "Seven Sisters acts" by the New Jersey legislature in February. These acts were believed to represent the views of President Woodrow Wilson. They defined a trust as an agreement between corporations, firms, or persons for the creation of trade restrictions or the acquisition of monopoly, for the limitation of production or raising of prices. They enforce the personal responsibility of directors, officers, and agents. They forbid differences in prices in different sections, allowance being made for qualities of goods and costs of handling, when such differences have the effect or intent of creating monopoly or hindering competition. They prohibit the purchase, acquisition, or holding of the stock of other corporations, except for the payment of debt, for temporary investment of surplus funds in noncompeting corporations, for the investment of benefit or insurance funds, or for depreciation or rebuilding purposes; rights previously acquired, however, are not affected by this provision. Future mergers must be approved by the board of public utility commissioners and filed with the Secretary of State.

PROSECUTIONS. The amount of prosecution under the Sherman anti-trust law has been very extensive. On March 4, when the Wilson administration assumed control, there were pending fifty-two cases, thirty-five civil, sixteen criminal, and one contempt proceeding. From that date until the issue of the annual report of the Attorney-General December 1, eight new cases were instituted, five civil and three criminal. During this time eight civil, eight criminal, and one contempt proceeding had been concluded, leaving forty-three cases pending.

Some of these cases were of sufficient importance to warrant a special notice found elsewhere in this article. The status of other cases may be briefly noted. The case against the Great Lakes Towing Company, et al., for monopolizing towing facilities of important lake ports, was decided, February 11, by the district court in favor of the government. At the close of the year plans for dissolution had been submitted to the court. In the case against the American Sugar Refining Company, et al., the government had concluded the presentation of its testimony in chief. The so-called Coffee Trust or Coffee Valorization case, or Herman Sielcken, et al., was dismissed in May, owing to the sale by the Brazilian government of all the coffee which had been withheld from the market. The Bathtub case, or the civil suit against the Sanitary Manufacturing Company, et al., had been decided in November, 1912, in the government's favor. Although the trust dissolved, criminal cases regarding which the jury had failed to agree early in 1912 were retried in February, 1913. A verdict of guilty was rendered and fines aggregating $51,000 were paid. Testimony was being taken in the suits against the Hamburg-American Packet Company, et al., Prince Line Company (Ltd.), et al., and the American-Asiatic Steamship Company, et al. In December, 1912, a civil suit against a combination of soft-coal-carrying roads in Ohio and West Virginia had been decided in favor of the government. In November, 1913, a supplementary decision regarding the relief to be granted was rendered, whereupon the roads involved set to work upon plans of dissolution. In February the three remaining indictments in the beef trust case were not pressed, they being little different from one on which the defendants had been acquitted. The United States Shoe Machinery Company had been charged with criminal conspiracy in restraint of trade; and although the district court at Boston had dismissed all five accounts the case was taken to the Supreme Court in December, 1912. On February 3 that court declared that an indictment charging an agreement to combine the businesses of manufacturing patented machines used in making different parts of shoes, which businesses were not competitive, did not constitute a case under the anti-trust law. Nevertheless the government continued to prosecute the civil suit against that corporation and those associated with it. Testimony was being taken at the close of the year. Moreover, criminal suits against the same defendants were being deferred until the civil suit should be concluded. The United Shoe Machinery Company of New Jersey, et al., was also being prosecuted for restraint of trade in respect of "inseam trimming machines." On February 6 at Detroit, the shoe-last trust was dissolved, the court holding that a combination of patented and unpatented articles, so as to fix the price of the latter, is an unlawful restraint of trade. Decision was awaited in the case against the Chicago Butter and Egg Board. The New Departure Manufacturing Company, et al., manufacturers of bicycle and motorcycle parts and coaster brakes, was the occasion of both civil and criminal cases. In the criminal suit some defendants pleaded guilty and others entered pleas of *nolo contendere*, total fines of $81,500 being imposed. In May the defendants agreed to a decree satisfactory to the government. The suit against the Keystone Watch Case Company, et al., was ready for final hearing. In the Paving Brick case, or that against Purrington, et al., in which an alleged conspiracy in restraint of trade in paving bricks in northern Illinois was charged, was concluded in June by a *nolle prosequi* entered by the government. In the criminal case against the North Pacific Wharves and Trading Company, the jury failed to agree. The Supreme Court having overruled a demurrer to the indictment against the Pacific and Arctic Navigation Company, et al., that case was being prepared for trial. The two preceding are known as the Alaska Transportation cases. The Hunter Milling Company, et al., having been charged with restraint of trade in wheat products, was found guilty in May and find $2000. In the notable case in the Motion Pictures Patents Company, et al., in which was charged a combination in restraint of interstate and foreign trade in machines, appliances, and apparatus relating to motion pictures, the government's testimony had been taken and that of the defendants was being taken. In February fifteen individuals, acting through the Produce Merchants' Exchange of Portland, were charged with illegal control of the purchase and distribution of about 90 per cent. of the fruit and vegetables shipped into the State of Oregon. They pleaded guilty and paid fines aggregating $8450. The Krentler-Arnold Hinge Last Company, et al., constituting a combination to control the price of shoe and boot lasts, patented and unpatented, entered a consent decree in February granting the relief asked. The one contempt proceeding was that against the Southern Wholesale Grocers' Association, et al., in the northern district of Alabama, charged with violation of decree of October, 1911. The association and three individuals were adjudged guilty of contempt and in July were fined $5500. On February 13 a petition was filed charging the Lackawanna (D. L. and W.) Railroad Company with transporting anthracite coal in violation of the commodities clause, and with entering into an unlawful contract with the D. L. and W. Coal Company, whereby a monopoly of the sale of such coal along the road's lines was created. The taking of the government's testimony was nearly completed. The Burrough's Adding Machine Company, et al., having been enjoined from combining to monopolize interstate trade, in adding machines, consented to a decree on March 3, at the same time the petition for injunction was filed. The Central West Publishing Company, et al., were enjoined in the northern district of Illinois from combining to restrain trade in plate and ready-print matter. Relief was granted by a consent decree in August. Petition to enjoin the American Coal Products Company, et al., with reference to the trade in tarred roofing-felts, coal-tar, pitch, and other coal-tar products, was granted by a consent decree. The Standard Oil Company was permanently ousted from Missouri by a decree of the State Supreme Court. In April a bill designed to supersede the ouster and permit the company to do business was vetoed by the governor, but in June the Supreme Court of the State suspended its own ouster decree, being satisfied that the Standard no longer had a monopoly of the oil business in that State. This same company, with others, was prosecuted by Texas for violating the State anti-trust law. The suit was settled in July when the Standard Oil Company of New Jersey agreed to pay $500,000 and to transfer nine-tenths of the stock of the Magnolia Company to a trustee as surety for maintaining competition. On November 29 suit was begun at Baltimore against the American Can Company and various other concerns. One of the most important suits was that against the United States Steel Corporation, testimony in which was being taken. The American Naval Stores Company was attacked by both civil and criminal suits. It was convicted; fines aggregating $17,500 were imposed; and two officers were sentenced to jail for three months each; but this judgment was reversed by the Supreme Court on June 9, owing to defects in the lower court's charge to the jury. The civil suit was abandoned because the company suspended business in March.

Among other cases which had been begun were the following: The Master Horse Shoers' National Protection Association, et al., was charged with restraining trade in the United States and Canada in drilled horse shoes, adjustable calks, and rubber hoof pads. The Elgin Board of Trade, et al., was charged with combining to restrain in butter and butter fat, and arbitrarily to fix their prices. Charles S. Mellin, et al. (New Haven case), was indicted, charging a combination to prevent the construction, by or in the interest of the Grand Trunk Railway Company, of various incoming lines in New England, thus forestalling threatened competition. The Kellogg Toasted Cornflakes Company, et al., was sued to enjoin the fixing of the retail price of Kellogg's Cornflakes. The board of trade of the city of Chicago, et al., was prosecuted to enjoin rule 33 of that board whereby the price of grain arriving in Chicago when the board is not in session is arbitrarily determined. Petition was filed in February to enjoin the Cleveland Stone Company, et al., from continuing an alleged monopoly of the manufacture, and sale of building, paving, curbing, and grind stones. The government sought to enjoin the McCaskey Register Company, et al., from the monopolization of the manufacture and sale of account registers and appliances. The Corn Products Refining Company, et al., was charged with combination to restrain and monopolize trade in corn products. The American Thread Company, J. and P. Coates, et al., were similarly charged with combining to restrain and monopolize interstate commerce in thread. A petition was filed in March to enjoin the Terminal Railroad Association of St. Louis, et al., from suppressing competition in the transportation of soft coal from Illinois to St. Louis. On June 19 members of the United Mineworkers of America were indicted for alleged conspiracy to interfere with interstate commerce in West Virginia coal. (See below.) Petition was filed on June 9 to enjoin the Eastman Kodak Company, et al., from restraining and monopolizing the manufacture, sale, and distribution of photographic supplies. The government sought to enjoin the Quaker Oats Company, et al., from restraining trade in oatmeal products and by-products. In September the Reading Company and other roads and coal companies constituting an anthracite coal combination were charged with restraining trade in anthracite coal; this suit, like that against the D. L. and W., previously mentioned, represents a new attack on the anthracite coal monopoly, and follows the Supreme Court decision in the Temple Iron Company case in December, 1912.

Harvester Trust. On April 11, 1912, suit was begun against the International Harvester Company, seven corporations and eighteen individuals for constituting an illegal combination. The government charged that the defendant companies controlled 90 per cent. of the trade in harvester machines, 75 per cent. of the trade in mowing machines, and monopolistic power in the production of other kinds of agricultural implements. Early in the year Attorney-General Wickersham gave the company an opportunity to dissolve voluntarily. The company, however, refused this proposition. Attorney-General McReynolds then sought to bring about a dissolution in fact as well as in theory, having in mind the rise in prices and other evidences of concerted actions following the dissolutions of the Standard Oil and Tobacco Trusts. He declared that the formation of the Harvester combine was not a necessary development of business, but a purposeful effort to destroy competition and enforce monopoly. He showed that in 1903, the year following its formation, the company did a total business of $53,000,000; in 1912 its business amounted to $125,000,000. Meanwhile its capitalization increased from $120,000,000 to $163,000,000. Yet in the first year of its activity the company controlled the following proportion of business in different lines: 98 per cent. of the binders, 95 per cent. of corn binders, 92 per cent. of mowers, 85 per cent. of rakes, and 40 per cent. of twine.

In rebuttal, the defense contended that monopoly was not achieved; and that the proportion of a business controlled is no proof of violation of the anti-trust law. It contended that the ordinary results of unlawful combination, such as unreasonable prices, reduction of wages, overcapitalization, excessive profits, oppressive trade methods, closed and dismantled plants, limitation of production, or deterioration of quality had followed the company's formation. On the contrary the trust claimed that its resources enabled it to build better machines, and to sell them throughout the world at lower cost. It claimed that it had advanced wages 27 per cent., had paid 25 per cent. more for materials, and raised prices only 2 per cent. Moreover, it had sold abroad about $160,000,000 worth of its products, thus increasing the prestige of the United States in the markets of the world.

American Telephone and Telegraph Company. This company was being actively prosecuted in the Federal Court at Chicago, when about the middle of December it voluntarily entered into negotiations designed to make unnecessary a contemplated suit against it under the anti-trust law. President Wilson and Attorney-General McReynolds accepted a plan of reorganization whereby the company agreed to dispose of all its stock of the Western Union Telegraph Company, to refrain in future from acquiring control over any other competitive system, and to make arrangements so that all other telephone companies might obtain for their subscribers service over the lines of the Bell system. The proposition submitted by the American company included in addition various detailed conditions, according to which connections between the Bell and independent lines would be made. President Wilson expressed himself as highly gratified at the spirit shown by the company, and declared his belief that a restoration of conditions of competition would put the business of the country on a sound and permanent basis. The plan by which the Western Union stock would be distributed was not determined.

The Bell system had come to comprise a large part of the telephone lines of the country. Thus, while almost the sole line in many Eastern communities, it had been charged on July 24 in the United States District Court of the eastern district of Oregon with monopolizing telephonic communication in certain far Western States. In 1895 the system comprised 675,415 miles of wire and had 14,517 employes; in 1900 it had 1,961,801 miles of wire and 37,067 employes; by 1905 the mileage had risen to 5,779,918 and the employes to 89,661; in 1910 the mileage was double that of 1905; and in 1912 it was 14,610,813 and the employes numbered 140,789. Its authorized capital is $500,000,000, of which $334,805,700 was outstanding January 1, 1913. The funded debt was $105,002,000. The dividends paid and surplus earned in 1912 were respectively $29,463,215 and $13,221,110.

Union Pacific—Southern Pacific. On December 2, 1912, the Supreme Court had declared the combination of these two railroads to be in violation of the anti-trust law. The combination had been effected by the acquisition of 46 per cent. of the stock of the Southern Pacific Company by the Union Pacific Railway. Considerable difficulty was experienced in working out a satisfactory scheme for the dissolution of the combination. The Union Pacific authorities proposed that their company's holdings of Southern Pacific shares be distributed *pro rata* to Union Pacific stock holders. The Attorney-General rejected this proposal, and was sustained by the Supreme Court on the ground that such distribution would not be compliance in good faith with the law. The California Railroad Commission rejected a plan whereby control of the Central Pacific was to be transferred to the Union Pacific. An agreement was finally reached (June 28) whereby the Union Pacific, which owned $126,650,000 par value of Southern Pacific Company shares, sold $88,000,000 of it through a trustee under certain restrictions, and exchanged the remaining $38,650,000 of it for $42,000,000 of Baltimore and Ohio stock held by the Pennsylvania Railroad.

Money Trust. In February, 1912, the House of Representatives ordered its committee on currency and banking to investigate the charge that there was a money trust. A sub-committee under the chairmanship of Representative Pujo, with Mr. Samuel Untermyer of New York as chief counsel, held hearings from April until mid-summer, 1912, and during the months of December, 1912, and January, 1913. Its attention was concentrated first upon the New York Clearing House Association, and then upon the system of interlocking directorates centring about the great banking houses, such as J. P. Morgan and Company. It elicited a great quantity of interesting, striking, and more or less valuable testimony. The main result of the entire inquiry was probably the development of a somewhat more intelligent public opinion due to the publicity given the results, and the consequent stimulation to the movement for remedial legislation by Congress. In the final recommendations of the committee were included the following with respect to clearing houses: That all clearing house associations admitting national banks be required to incorporate themselves; that every bank and trust company which is solvent and properly managed, shall be allowed membership in its proper association; that the association itself institute regular periodical examinations of its members; that clearing house certificates be issued only to pay balances at the clearing house; that the associations be prohibited from requiring members to charge prescribed rates for collecting out-of-town checks; and that they likewise be prohibited from prescribing rates of interest on discounts, rates of interest on deposits, or rates of exchange.

With reference to the concentration of banking power the committee made the following recommendations: That two or more banks should not be permitted to consolidate except upon the approval of the Comptroller of the Currency; that no person should be permitted to be a director in more than one national bank in the same community; that no stock of a national bank should be owned or held by any other bank, trust company, or holding company, and that no bank should be permitted to own or hold directly or indirectly any part of the stock of any other bank or trust company; that "voting trusts" should be expressly prohibited; that minority representation in banking directories be secured by a system of cumulative voting; that security holding companies as adjuncts to banks be not permitted; that no interstate corporation should constitute any bank or trust company its sole fiscal agent; that interstate corporations should not deposit their funds with unsupervised private bankers who do not disclose their condition, and who keep no reserve; that national banks should be prohibited from engaging in any promotion, guaranty, or underwriting, involving the transfer of the securities of any corporation; that national banks be authorized to invest one-fourth of their capital and surplus in public bonds and corporation mortgage bonds on which the interest has been regularly paid for five years.

There were in addition a considerable number of recommendations dealing with the New York Stock Exchange. The investigation and regulation of this exchange, however, was taken up by the New York legislature.

COTTON CORNER. The provisions of the Sherman law were extended to a new kind of case in the decision of the United States Supreme Court, January 6, 1913, in the so-called Patten cotton corner case. The court declared through Justice Vandevanter that "it was a conspiracy to run a corner in the market. The commodity to be cornered was cotton, a product of the Southern States, largely used and consumed in the Northern States. It was a subject of interstate trade. The corner was to be conducted on the Cotton Exchange in New York City, but by means which would enable the conspirators to obtain control of the available supply and to enhance the price to all buyers in every market of the country. Bearing in mind that such was the nature, object, and scope of the conspiracy here regarded, it is altogether plain that by its necessary operation it would directly and materially impede and burden the due course of trade and commerce among the States, and therefore inflict upon the public the injuries which the anti-trust act is designed to prevent." This decision implied that whether the persons involved in a conspiracy intended to restrain interstate trade or not, or whether they were producers of the articles in question or not, or whether they actually handled the articles or not makes no difference. The result achieved by the conspiracy is the ground upon which judicial judgment of the nature of the conspiracy must be determined. On February 4, Mr. James A. Patten pleaded guilty to the charge of the above conspiracy and was fined $4000. Other defendants demurred; they were overruled by the Supreme Court and in December entered pleas of *nolo contendere* to a modied indictment and were fined $4000 each.

NATIONAL CASH REGISTER COMPANY. Both civil and criminal suits were brought against this concern, not on the ground of combination, but because of monopoly power and unfair business methods. The taking of testimony in the civil suit was announced to begin early in 1914. The criminal suit was terminated February 13, when 29 out of 30 indicted officials were convicted at Cincinnati. Fines aggregating $135,000, and jail sentences ranging from three months to one year, were imposed. This concern was convicted of most execrable business methods, and was roundly denounced by the press of the country for insatiable greed. It had increased its control of the cash register business from 80 per cent. to 95 per cent. by bribing employes of express and railway companies; by otherwise maintaining espionage of its rivals' business; by preventing extension of credit to rivals; by requiring its agents to interfere with the sales of other registers, even by gross misrepresentation and the wrecking of other makes in actual use; by resorting to unfair price-cutting to defeat sales of competing concerns; by bringing suits for infringement of patents for sole purpose of financially embarrassing rivals; by setting up dummy competitors; and by inducing agents of rivals to enter its employ.

PUBLISHERS' ASSOCIATION. This was an association of book publishers by means of which certain rules governing the sale of books to the retail trade and the regulation of retail book prices were effected. R. H. Macy and Company, a New York department store, sold books at prices less than those stipulated by the association. The association then endeavored to cut off from Macy and Company its supply of books, by refusing to furnish books to any dealer known to sell to that department store. Macy and Company then, in 1902, brought suit to prevent the boycotting of their firm. The case was put through the New York State courts and finally decided by the United States Supreme Court about December 1. The opinion of the court declared illegal any combination to control the retail price not only of uncopyrighted books, but also of copyrighted books. The right of the retailer to sell any books at any price he chooses was guaranteed.

HAMMERSTEIN-METROPOLITAN SUIT. A unique decision was handed down early in December by Justice Pendleton of the New York Supreme Court, in a case whereby Oscar Hammerstein sought to break an agreement made a few years previously with the Metropolitan Opera Company. Mr. Hammerstein had in April, 1910, sold his Manhattan Opera House and equipment to the Metropolitan Opera Company, and entered into an agreement not to engage again in the production of opera for a period of ten years. He nevertheless, in 1912, made plans to give performances in English. He contended that his agreement of 1910 constituted a violation of the Sherman act; and that this act had been further violated by the Metropolitan Company in preventing him from giving opera in Boston, Philadelphia, and Chicago, as well as New York. The court held that the production of opera is not interstate commerce, and therefore the Sherman act does not apply to it. An injunction was therefore issued; but Mr. Hammerstein nevertheless declared his intention of opening his opera season in January, 1914, at his new American Grand Opera House.

TRADE BLACKLISTS. One of the most unique cases yet prosecuted under the anti-trust law was that of wholesale lumber dealers against the Eastern States Retail Lumber Dealers' Association. This association was charged with restraint of trade within the meaning of that law because it circulated an official list giving the names of the wholesalers who carried on at the same time both a wholesale and a retail business. The retailers' complaint was that these wholesalers would sell to one of their number and at the same time endeavor to secure retail business. The Federal district court sitting in New York issued an injunction restraining the association from publishing or circulating this official blacklist. The association itself was, however, not attacked. The Retail Lumber Dealers' Association appealed the case on the ground that the actual restraint of the trade was exerted not by them but by the wholesalers.

TSUMEBITE. See MINERALOGY.

TUBERCULOSIS. THE FRIEDMANN EPISODE. Dr. Friedrich Franz Friedmann, a German bacteriologist, read a paper in November, 1912, before the Berlin Medical Society, announcing a new method of curing tuberculosis, but giving meager details of the method. The paper was not well received by the German physicians, but sensational reports appeared in the American newspapers immediately thereafter, as to the wonderful efficiency of the new cure. Early in 1913 Dr. Friedmann came to New York, nation-wide publicity being given to his arrival, and to the reputed value of his serum. Refusal to divulge the exact nature of the serum aroused the distrust both of the city and national authorities, but he was invited to treat a large number of cases in New York City and other places, and after some negotiation disposed of the rights to his remedy to a firm of drug manufacturers. Thereafter the serum was found to be an emulsion of normal saline solution and living tubercle bacilli isolated from a turtle. It was used by injection into the muscular tissues or into the veins of the patient. By the end of September the treatment was thoroughly discredited and its administration barred by the New York City health department. The cases which had received injections of the Friedmann serum in the New York, Canadian, and Rhode Island hospitals were reported as not benefited, and many of them were made worse. At the great International Tuberculosis Congress in Berlin, in 1913, Friedmann's alleged cure was not mentioned in any contribution.

STATISTICS. L. Hoffman stated that a considerable amount of trustworthy statistical evidence was available to sustain the conclusion that the mortality from tuberculosis of the lungs had actually, as well as relatively, diminished in the United States during the last thirty years, and that on the basis of rates for the registration area, the saving of lives due to the campaign against this disease during the decade ending 1910 alone had amounted to nearly 200,000. The death-rate in this decade has diminished from 174.5 to 139.7 per hundred thousand of population.

A study of the combined mortality from tuberculosis of the cities of New York, Philadelphia, and Boston for 100 years, commencing with 1912, showed that the death-rate from the disease had persistently diminished, from 418.7 per hundred thousand in the population in the first decade of this period to 213.9 in the last decade. Furthermore, this tabulation showed that there had been a much more decided tendency toward a reduction of the death-rate since 1882. The mortality, which was 389.1 in 1881, had declined to 180.1 in 1902. These figures present the most conclusive evidence on record that the deliberate, intelligent, and nation-wide campaign against tuberculosis on the principle of its being an intectious disease and transmissible from man to man, has been successful.

Another study of fifty large American cities for the four years' period beginning 1871, showed that the death-rate in this group had declined from 335 per hundred thousand in 1881 to 166 in 1911. This decline in northern and western cities was from 325 to 160 per hundred thousand, or 50.8 per cent. In the white population of southern cities the rate declined from 301 to 150, or 50.2 per cent., while the colored population of southern cities showed a reduction of from 668 to 423, or 36.7 per cent. See HELIOTHERAPY; VETERINARY SCIENCE.

TUFTS COLLEGE. An institution for higher education, founded at Medford, Mass., in 1852. The total number of students enrolled in the several departments in the autumn of 1913 was 1064. The faculty numbered 242. There were no notable changes in the faculty during the year. The important benefactions received included $350,000 from the Braker endowment, and $29,500 from the Cummings estate. The productive funds of the college amount to about $1,817,000, and the income to about $54,000. The library contains 70,000 volumes. The acting president is William L. Hooper, Ph.D.

TUKE, SIR JOHN BATTY. An English alienist, died October 13, 1913. He was born in Beverley, Yorkshire, in 1835, and was educated at Edinburgh Academy and University. As soon as he had taken his medical degree he went to New Zealand. At the outbreak of the Maori War in 1860 he was senior medical officer to the colonial troops, and served nearly to the end of the war. On his return to Scotland in 1863, he began practice of medicine in Edinburgh. In 1873 he became associated in the management of Saughton Hall Asylum, which he continued to direct until a few years before his death. In 1895 he was elected president of the Royal College of Physicians at Edinburgh, and in 1898 was knighted. Elected to Parliament in 1900 and again in 1906, he retired from it in 1910. His published writings include: *Morison Lectures* (1874); and *The Insanity of Over-exertion of the Brain* (1894).

TULANE UNIVERSITY. An institution of higher learning, founded at New Orleans, in 1834. The total enrollment in all departments on November 1, 1913, was 2524. The faculty numbered 296. In 1913, Robert Sharp, A. M., Ph.D., was appointed president of the university, and C. S. Williamson was appointed professor of industrial and sugar chemistry. A gift to the school of dentistry was made in the will of Dr. Watson Woodward. The library contains about 56,000 volumes.

TUNGSTEN LAMPS. See Electric Lighting.

TUNIS. A French north African protectorate lying between Algeria and Tripoli and covering 167,400 square kilometers (64,600 square miles). The population was estimated in 1911 as 1,929,003—1,730,144 indigenous Arabs, Berbers, Moors, etc.; 50,383 Jews, 148,476 Europeans (46,044 French, 88,082 Italians, 11,300 British and Maltese, 696 Greeks, 587 Spaniards, 1767 other). Tunis, with 164,608 inhabitants (69,475 Europeans), is the capital.

Production. Agriculture in the low regions, grazing in the fertile mountain valleys are the principal industries. Area under main crops and yield for two years (1913 provisional) are given below, with average quintals yielded per hectare in 1912:

	Hectares		Quintals		Qs.
	1912	1913	1912	1913	ha.
Wheat	570,680	500,000	1,050,000	1,500,000	1.8
Barley	480,830	400,000	670,000	1,400,000	1.4
Oats	54,360	54,000	360,000	600,000	6.6
Corn	20,000	11,000	81,947	35,000	4.1
Vines *	10,000	14,000	290,000	300,000	29.0

* Productive area; yield in hectoliters of wine.

There were reported at end of 1911 to be 39,441 horses, 80,951 donkeys, 13,289 mules and hinnies, 110,707 camels, 191,450 cattle, 686,730 sheep, 468,828 goats, and 17,898 swine.

The mining industry has developed in recent years; copper, lead, zinc, phosphates, and iron are raised. The fisheries are valuable. Wool spinning and weaving, with the manufacture of carpets, slippers, saddles, and pottery, are the principal indoor industries.

Commerce, etc. The trade in the table below is in thousands of francs for four years:

	1909	1910	1911	1912
Imports........	114,447	105,497	121,683	156,294
Exports........	109,166	120,401	143,681	154,655

The principal articles of exports for 1912 follow, values in thousands of francs—phosphates 47,755, cereals 24,892, olive oil 20,552, live animals 9104, lead 8788, iron 6393, wine 5341, zinc ore 5265, esparto 4201, sponges 3350, woolens 3129, hides 2130, fish 1903, cork 1606. France contributed exports valued at 8,265,000 francs and received exports, 67,773,000 francs; Algeria, 17,835,000 and 7,738,000; United Kingdom, 14,544,000 and 13,752,000; Italy, 8,972,000 and 25,256,000; etc. Vessels entered, 12,964, of 4,744,010 tons. Merchant marine, 2 steamers, of 36 tons net, and 13,868 sail, of 145,666. Railways (1912), 1626 kilometers; telegraph lines, 4604 kilometers (wires 16,101); stations, 216; post offices, 431.

Finance and Government. The 1913 budget estimated the revenue and expenditure at 85,012,400 and 85,002,322 francs respectively; 1911, 108,832,148 and 108,821,131.

The reigning bey is Sidi-Mohammed en Nasser (born 1855, succeeded 1906). A French resident-general (G. F. Alapetite since 1907) administers the country under the control of the foreign office.

TUNNELS. United States. Tunnel construction in the States during 1913 was connected more with various rapid transit enterprises than with large railway schemes. An interesting plan, proposed by John F. O'Rourke, was for the elimination of timber by using interlocking concrete blocks, with the aim of affording protection against falling roof and of facilitating the progress of the work. Among the notable tunnels completed during the year was the Sand Patch tunnel, a 400-foot double track tunnel at Sand Patch, Somerset County, on the Connellsville division of the Baltimore and Ohio. This tunnel was driven to carry the main line from Cumberland, Md., to Pittsburgh through the summit of the Allegheny Mountains. During the year two important tunnels were under construction on the Louisville and Nashville Railroad, at Blount and Hayden Mountain, the former being 1000 feet in length and the latter 2100 feet.

To provide for the conveying of gas, manufactured at the Astoria plant of the Consolidated Gas Company of New York City, there was constructed during the year a tunnel under the East River between Astoria and the Bronx in order to accommodate the growing population of that district. It is 4662 feet long from centre to centre of shafts, the Astoria shaft being 34 feet 6 inches in diameter and 276 feet 9 inches deep, and the Bronx shaft 26 feet in diameter and 233 feet deep, giving a down grade toward the Astoria shaft. It is of D shaped cross section designed to carry in a concrete saddle two 72-inch gas mains with accommodations for two similar mains in the future. The tunnel is lined with concrete and was practically completed at the end of the year. The gas mains of cast iron 72 inches in diameter to be used for this tunnel are the largest ever constructed, with a 2½-inch thickness of wall, each section weighing 13 tons. It should be completed in 1915.

Canada. The three-mile tunnel being built under Mount Royal at Montreal, Canada, was holed through on December 9, and the following day a train, electrically operated, was sent through the tunnel. The average progress in the construction of this work was 420 feet per month, with a gross average progress of 1100 feet per month. The operation was greatly facilitated by the installation of the muck-handling drill carriage. The Canadian Pacific Railway also had under way some notable tunnel construction in the Selkirk Mountains.

Africa. On February 22, 1913, two headings for the longest tunnel in South Africa, at Stockston, in Natal, met. The tunnel is 2586 feet in length and was built from headings nine by nine feet started at either end in May, 1912.

European Railway Tunnels. In Europe a considerable tunnel construction was in progress during the year. The Lötschberg, which has been described in previous issues of the YEAR BOOK, was opened for international traffic on June 15. Work was in progress on the second gallery of the Simplon tunnel, which had been undertaken by the Swiss government to meet the needs of increased traffic. On October 10 the Mont d'Or Tunnel between France and Switzerland was holed through, and during the remainder of the year the work of completion was pushed so that it could be opened for traffic early in 1914. This new tunnel is 3¾ miles in length and pierces the Jura Mountains from Frasne to Vallorbe, saving a seven-mile detour.

CHANNEL TUNNEL. The committee of imperial defense of Great Britain was directed during the year to consider special reports from the Admiralty, the war office and the board of trade on the project of tunneling the English Channel, an enterprise in which interest was revived during the year. Whenever this scheme had been projected before in England, much opposition, largely of a sentimental and military nature, had been manifested, but in 1913 this was far less than in previous years, and it was thought that an engineering achievement, comparable with the construction of the Panama Canal, might eventually be accomplished. The Channel Tunnel Company, basing their opinions on the results of the Hawkshaw and Brunlees operations of some forty years previous, as well as on new borings of their own, became convinced that the project was feasible, and accordingly proposed that should they receive the sanction of Parliament they would proceed to construct twin and independent tubes so that with trains moving entirely in one direction there would be adequate ventilation, as in the case of the London tubes. On the French side a company, which had received legal powers, was to undertake the construction of the continental half of the scheme; and here, too, no serious difficulties were anticipated. On the English side two distinct sets of bores will be constructed, one a drainage heading starting at 350 feet below sea level at Dover and rising by a grade of one in 500 to about six miles from the shore where it will meet the main railway tubes which descend in easy grades to this point. Thence the tubes will rise by a grade of one in 1000 to the summit at mid-channel where the French work will be met, and similar construction, doubtless, will be followed on the south side of the work. It was thought likely that the drainage heading twenty-four miles in length would be put through before the main tubes were constructed, and would be used not only for drainage and the removal of excavated materials, but as supplemental to the main system of ventilation. The main tunnels will consist of two single-track tubes each of 18 feet interior diameter, so that the largest rolling stock of the British and French main lines can be accommodated. Electric locomotives will be employed, and the total length of the twin tubes and the approaches will be about thirty-one miles. The tubes will be placed 32 feet apart from centre to centre, and will be lined throughout with cast-iron segments of ample strength to resist any possible pressure, and will be grouted on the outside in the usual manner of underground tube construction. At frequent intervals cross-passages will be constructed and fitted with air-tight doors. All the construction work, as well as the operation when finished will be carried on by electricity, and an elaborate ventilating system is planned. Most of the construction will be in chalk and the preliminary surveys and plans have been made with this idea in view. It is estimated that the total cost of the undertaking will be $40,000,000 for the English portion, and for the French half approximately the same sum. The engineering difficulties in view of modern methods of tunneling construction were in no way considered insurmountable. See AQUEDUCTS, and RAPID TRANSIT.

TURBINES. See INTERNAL COMBUSTION ENGINES.

TURKEY, or the OTTOMAN EMPIRE. Formerly a vast empire comprehending extensive possessions in Europe, Asia, and Africa, but greatly reduced by wars in 1911-13 with Italy and the Balkan States. Constantinople is the capital.

AREA AND POPULATION. *European Turkey.* Previous to the wars in the Balkans, Turkey in Europe covered 169,300 square kilometers (65,367 square miles) carrying a population estimated at 6,130,200. This territory was made up of seven vilayets and one mutessarifat as follows: Constantinople, 3900 square kilometers, and 1,203,000 inhabitants; Tchataldja (mutessarifat), 1900 square kilometers and 600,000 inhabitants; Adrianople, 38,400 and 1,028,200; Salonika, 35,000 and 1,130,800; Monastir, 28,500 and 849,000; Kossovo, 32,900 and 1,038,100; Scutari, 10,800 and 294,100; Yanina, 17,900 and 527,100. After the first war in the Balkans the Treaty of London (May 30, 1913) fixed the northwest boundary of Turkey by a line running through Adrianople vilayet from Enos (Ægean Sea) to Midia (Black Sea); but during the second war Turkey reoccupied the city of Adrianople and with the city recovered more of Adrianople vilayet. This territory was conceded to her by the Treaty of Bucharest (August 10, 1913), and, with Constantinople and Tchataldja, is all that remains to Turkey of her European domains. Constantinople (city) has, with suburbs, 1,200,000 inhabitants; Adrianople, 123,000.

Asiatic Turkey. Turkey in Asia is divided into Asia Minor, Armenia and Kurdistan, Syria and Mesopotamia, and Arabia; these divisions are subdivided into vilayets and mutessarifats as follows:

	Sq. kms.	Pop.
Archipelago	6,900	322,300
Ismid *	8,100	222,700
Bigha *	6,600	129,500
Brussa	65,800	1,626,800
Smyrna	55,900	1,396,500
Konia	102,100	1,069,000
Adana	39,900	422,400
Angora	70,900	932,800
Kastamuni	50,700	961,200
Sivas	62,100	1,057,500
Trebizond	32,400	948,500
Total Asia Minor	501,400	9,089,200
Erzerum	49,700	645,700
Mamuret-ul-Aziz	32,900	575,200
Bitlis	27,100	398,700
Diarbekr	37,500	471,500
Van	39,300	379,800
Total Armenia and Kurd	186,500	2,470,900

	Sq. kms.	Pop.
Aleppo	86,600	995,800
Beirut	16,000	533,500
Lebanon *	3,100	200,000
Jerusalem *	17,100	341,600
Syria	95,900	719,500
Zor *	78,000	100,000
Bagdad	111,300	614,000
Mosul	91,000	351,200
Basra	138,800	433,000
Total Syria & Mesopotamia	637,800	4,288,600
Hejaz	250,000	300,000
Yemen	191,100	750,000
Total Arabia	441,100	1,050,000

* Mutessarifat.

Asir, Nejd, and El Hasa and El Katr, in Arabia, are regarded as belonging to Turkey; but are inhabited by tribes whose subjection is merely nominal. Anatolia is another name for Asia Minor. No official census having been taken, the population of the following cities, all in Asiatic Turkey, must be regarded as estimates: Damascus, 250,000; Smyrna, 250,000; Aleppo, 200,000; Beirut, 140,000; Bagdad, 125,000; Erzerum, 120,000; Afium, 95,000; Manissa, 90,000; Jerusalem, 84,000; Aidin, 80,000; Brussa, 80,000; Diarbekr, 80,000; Mosul, 80,000; Sivas, 78,000; Urfa, 72,000; Aintab, 70,000; Mecca, 70,000; Basra, 60,000; Trebizond, 60,000; Adana, 50,000; Homs, 50,000; Hodeida, 49,000; Medina, 49,000 Angora, 38,000; Tripoli, 32,000.

Turkey in Africa. By the terms of the treaty of Lausanne (October 15, 1912), which closed the Turco-Italian War, Tripoli and Bengazi were lost to Turkey. Egypt (q.v.) alone remains, and the suzerainty of Turkey over Egypt is merely nominal.

Social Conditions. The population is made up of Turks, Greeks, Arabs, Albanians, Bulgarians, Servians, Vlachs, Kurds, Armenians, Jews, Syrians, Circassians, and other races. Mohammedans are in the majority. Gregorians predominate in Armenia. There are also Roman Catholics, Jews, Nestorians, etc. Primary education is provided by the Mohammedan priesthood attached to the principal mosques, and consists chiefly in the reading of the Koran. Secular education in the western sense is almost entirely lacking, except in non-Moslem institutions, which meet with no opposition or restraint. Secondary schools are few and special schools almost unknown. The fundamental laws are based upon the Koran. Mohammedan priests are estimated to number about 11,600 and are subject to the sheikh-ul-Islam, who is appointed by the sultan: their priestly office is, however, hereditary. The private ecclesiastical revenues amount to about 20,000,000 piasters per annum. The state pays to the sheikh-ul-Islam 7,031,520 piasters annually, and to the naïbs and muftis 7,876,646. The condition of the peasant class is most miserable, the tithe and customs system effectually crippling incentive and breeding chronic poverty, uncertainty, and fear.

Production. The soil is generally fertile and agriculture by primitive methods is practiced. The farmer, however, makes no attempt to progress, or to produce in quantities beyond his immediate need: the method of levying a government tax in kind upon all produce serves as an effectual check to enterprise, and an additional tax is laid upon all produce exported from one vilayet or subdivision into another. Moreover, the labor problem is acute throughout the empire. No reliable statistics of areas under cultivation nor of production exist. An attempt to estimate the output of cereals from twenty-nine districts and provinces (so-called) in 1910 resulted as follows: 44,845,000 quintals of wheat, 4,773,000 of rye, 29,005,000 of barley, 4,478,000 of oats, 11,246,000 of corn, 1,019,000 of rice. The area under tobacco in the empire in 1909 was estimated at 107,368 acres, yielding 74,445,244 pounds. Tobacco is a government monopoly which will lapse in 1914, when the production is expected to increase. The amount exported in 1911 was placed at 54,468,034 pounds. The annual output of olive oil has been estimated at about 750,000 quintals, of which 150,000 quintals are exported, 150,000 are consumed by the soap factories, and the remainder by the home markets. The increased cost, however, has led to the substitution of animal fats and other oils. The opium yield in 1909-10 was about 10,000 cases, of extra quality. The world's supply of true Mocha coffee comes from Yemen; it is all grown for export, as the Yemen Arab never himself uses it. Cotton is raised in increasing quantities. Other products are figs (from Smyrna), raisins, wine, nuts, valonia, canary seed, and linseed. Large areas are under forest. Sheep-raising is practiced, and the fisheries products are valuable. Wool and mohair are exported.

The abundant mineral wealth of the empire is undeveloped. Transportation facilities are inadequate, and labor is lacking. Salt is a government monopoly. Coal is mined to some extent; also phosphate of lime, copper, zinc, iron, silver, gold, antimony, etc. The manufactures include silk, carpets and shawls, leather, firearms, brassware, etc. Flour, cotton, and woolen mills produce goods for home consumption and also for export. But manufacturing interests meet with the labor problem, which so far has proved insurmountable for large enterprises.

Commerce. Figures for the trade of the Ottoman empire are incomplete and far from reliable. The returns from countries of origin and destination all differ widely when compared with Turkish returns, the Turkish export figures being much too low. As reported for years ending February 28, 1910 and 1911, the trade by great classes is shown below in thousands of piasters:

	Imports		Exports	
	1910	1911	1910	1911
Raw materials	212,278	225,372	542,012	903,461
Foodstuffs	1,277,513	1,189,038	685,910	938,651
Indust. prods.	1,952,028	2,375,809	540,850	206,507
Other "	151,784	222,255	61,155	140,170
Total	3,593,603	4,012,574	1,829,927	2,193,789

The main articles of import are cottons, sugar, cereals, linen, yarns, woolens, rice, petroleum, etc.; exports, raw silk and cocoons, raisins, cereals and derivatives, mohair, figs, coffee, opium, skins, valonia, vegetables, minerals, fruits, carpets, etc. The principal countries of origin and destination follow, with values in thousands of pounds Turkish, for 1910-11, compared with 1908-9:

	Imports 1908-9	Imports 1910-11	Exports 1908-9	Exports 1910-11
United Kingdom....	9,413	8,205	5,137	5,355
Austria-Hungary....	4,075	7,558	2,478	2,169
France	3,371	3,832	3,634	4,395
Germany	1,936	3,291	1,150	1,309
Italy	51	3,635	1,007	1,478
Russia	2,494	2,736	5,749	911
Bulgaria	1,356	1,037	568	748
British India.........	....	1,932	....	255
Belgium	870	1,456	174	618
Egypt	1,163	1,144	1,657	1,565
Rumania	1,262	1,066	384	529
Netherlands	634	795	251	334
Persia	554	691	94	45
United States.......	411	634	703	1,007
Servia	603	460	99	301
Greece	396	237	436	382

Vessels entered (1910) at Constantinople, 20,268, of 19,153,951 tons, of which 11,684 steamers, of 18,554,116; at Smyrna, 6655, of 2,477,733 tons, of which 2661 steamers, of 2,400,333. Merchant marine (1911), 120 steamers, of 66,878 tons, and 963 sail, of 205,641.

COMMUNICATIONS. Railway statistics for 1911 included 1994 kilometers in Europe, 2372 in Asia Minor, and 2294 in Syria and Arabia. Italian capitalists during the year, through Count Nogara, signed a contract with the Ottoman government for the construction of a network of railways in the southwest of Asia Minor with a terminus at Adalia. The Kishtah-Karapoona section of the Bagdad railway was opened early in the year, and the Osmania-Muslimuyeh and Konia-Dorak sections were in progress. The difficult portion through the Taurus Mountains to Konia made little progress. The Aleppo-Jherabis section was completed, while the branch line, Taprak-Kale to Alexandretta, was opened on November 1. The Julfa-Tabriz section in Persia was in progress, while in Syria the Jerusalem to Mount Carmel (Afulah) was under construction. In connection with the harbor improvement at Jaffa, a new railroad connection with Jerusalem formed the subject of a concession to a French company. A line was to be built from Rayak on the Beirut-Damacus line to Lydda on the Jaffa-Jerusalem line. This would make possible, not only the commercial development of the rich plains of Esdrælon and Sharon, but an all-rail journey to Jerusalem from Constantinople, via the Aleppo branch of the Bagdad line. Telegraph lines (1911) include European and are given as 48,026, wires 80,304. Post offices, 1632.

FINANCE. The monetary unit is the Turkish pound of 100 piasters; its par value is $4.39642. The revised budget for 1912-13 is given in detail below:

Revenue	£T	Expenditure	£T
Direct taxes..	14,870,381	Finance, debt..	15,790,983
Indirect " ..	5,692,728	War	21,601,458
Stamps, etc....	1,361,886	Marine	6,046,000
Monopolies ...	3,621,373	Pub. works....	3,899,633
State enterpr's	301,867	Administration	4,037,287
Tribute	893,877	Instruction	1,143,648
Pensions	1,178,513	Ind. taxes......	497,700
Domains	868,764	Civil list.......	505,880
Various	1,724,770	Legislature ...	218,711
		Foreign affairs.	264,079
		Survey	118,195
		Justice *	789,566
		Agriculture ...	484,858
		Posts & tels..	858,000
		Sheikh-ul-Islam	523,288
		Court of accounts	25,170
Total	30,514,159	Total	57,164,450

* And worship.

Including £T5,231,424 at 4 per cent. loaned for the Bagdad Railway, and a loan in 1911 of £T11,479,050, the total debt stood at the end of 1912 at £T131,839,978.

ARMY. In 1913, as in 1912, the Turkish army was concerned more with active problems than with such matters of organization as could be recorded in available statistics. The shortcomings of the previous system of organization and recruitment were obvious in the war and new methods of instruction and new instructors were to be looked for. Military observers and critics confined themselves to a discussion of the problems of the Turkish army in conflict rather than to any proposed schemes of organization, so that at the end of the year there was little positive information available as to recent progress, while earlier issues of the YEAR BOOK have discussed in full the organization of the Turkish army previous to the conflict in 1912.

NAVY. The effective fleet included in 1913, two protected cruisers, 2 torpedo craft, 15 gunboats, 8 torpedo destroyers, and 16 torpedo boats. Building is one battleship of the super-dreadnought type, of 23,000 tons displacement, 21 knots speed, and a main armament of ten 13.5-inch guns, besides sixteen 6-inch guns and five torpedo tubes. She was ordered from the Vickers firm at Barrow and was launched September 3, 1913. Personnel, 13,000 of all ranks. Rear-Admiral A. H. Limpus succeeded Rear-Admiral H. P. Williams as naval adviser to the Turkish government, April, 1912.

GOVERNMENT. Turkey is a constitutional hereditary monarchy of which the sultan is both temporal and spiritual head. The succession rests in the senior male descendant of the house of Osman, sprung from the imperial harem. The sultan does not marry; but all children born in the harem, whether of free or slave women, are counted legitimate and of equal lineage. A grand vizier appointed by the sultan forms the cabinet; the sheikh-ul-Islam is, under the sultan, the director of ecclesiastical affairs. For administrative purposes the empire is divided into vilayets, sanjaks, kazas, nahiés, and kariés. The legislative body is composed of a senate and a chamber of deputies. The constitution of December 23, 1876, abolished in 1877, was reëstablished July 23, 1908. Mohammed V., born 1844, emperor of the Ottomans, khalif of the Mussulmans, thirty-sixth sovereign of the house of Osman and twenty-ninth since the taking of Constantinople, is the third son of Abdul Mejid. He succeeded his brother Abdul Hamid, deposed April 27, 1909; Abdul Hamid had succeeded his eldest brother Mohammed Murad (deposed August 31, 1876), who had succeeded his uncle Abdul Aziz (deposed May 30, 1876), who had succeeded the father of the present sultan deceased June 25, 1861. The oldest son of the sultan succeeds only when there are no surviving uncles or cousins older than himself. Heir-presumptive, Yussuf Izzedin (born 1857), son of Abdul Aziz.

HISTORY

INTRODUCTION. The chief interest in Turkey during 1913 centred in the conduct and outcome of the Balkan War, which is fully discussed under the title TURKEY AND THE BALKAN PEOPLES. The present article deals only with the internal affairs of the empire.

POLITICAL CRISES. The Young Turk party and their powerful agent, the committee of union and progress, which had named or at least dominated the government practically from the Revolution of 1908 until the autumn of 1912, were very generally blamed for the military reverses that brought the country in 1913 almost to the brink of ruin. Their absorbing patriotism had expressed itself in a ruthless policy of Ottomanizing the empire—attempting to substitute uniform, national law for long-established local customs and usages—with the result that enemies had arisen on all sides, from Basra on the Persian Gulf and from far-away Arabia, throughout Syria and Armenia, to the fierce Christian fighters of Macedonia and Albania. On the other hand, their absorption in political affairs had caused the Young Turks to neglect the army, the one weapon against their numerous opponents; army officers gave more heed to politics than to their commands; discipline was undermined; and Turkey was unprepared to resist the onset of the Balkan allies. Under these circumstances the Young Turks had been discredited and late in October, 1912, had lost control of the cabinet. In November, when the swift advance of the Bulgarians had thrown Constantinople into a panic, it was easy for Kiamil Pasha, the grand vizier, to defy the committee of union and progress and to imprison several of its leaders. There seemed to be little real opposition to Kiamil's attempts speedily to terminate the disastrous war, and a Grand Council of Notables, convened in January, expressed its unreserved approbation of the ministerial programme and unanimously accepted the mediation of the powers.

The Young Turk leaders, however, who had been released from prison on December 8, stigmatized the proposal to surrender Adrianople and the Ægean Islands as cowardly. With "save the national honor or perish in the attempt" as a slogan, the committee of union and progress stirred up a great popular demonstration against the government. On January 23, the day following the Grand Council's acquiescence in the terms of peace, a small company of mounted officers, headed by Djemal Bey, vali of Adana, rode into the Porte. Their arrival was the signal for a concerted rush on the part of various groups that had been watching close by. Enver Bey and Halil Bey then appeared, and, with Djemal Bey, entered the Porte and asked to see the grand vizier. They were followed by other members of the committee of union and progress. Nazim Pasha, minister of war, came out of the council chamber and was at once shot and killed by a member of the advancing group. In the ensuing *mélée*, two other persons were murdered. Enver Bey then entered the council chamber and informed Kiamil Pasha that he must either resign or swear to continue the war. The grand vizier chose the former course, and, armed with his resignation, the conspirators proceeded to the palace, where they secured the sultan's assent to the appointment of their old leader, Mahmud Shevket Pasha, as grand vizier. This dramatic *coup d'état* brought in the following Young Turk ministry: Grand vizier and war, Mahmud Shevket Pasha; president of the council, Prince Said Halim; foreign affairs, Mukhtar Bey; interior, Hadji Adil Bey; marine, Tshuruk Sula Mahmud; justice, Ibrahim Pasha; finance, Rifaat Bey; public works, Batzaria Effendi; pious foundations (*Evkaf*), Hairi Bey; agriculture, Djelal Bey; posts and telegraphs, Oskian Effendi; and education, Shukri Bey. Though accepting no office, Enver Bey and Talaat Bey were known to possess great influence with the new government.

Despite the energetic efforts of Enver Bey and of the cabinet, the Turks were unable, upon the resumption of hostilities, to stem the tide of defeat, and by the end of April they were obliged to confess that the Balkan allies were in complete possession of all European Turkey except Constantinople and its environs. Then it was that even the Young Turks consented to open negotiations for peace, and, instead of dying in the attempt to "save the national honor," the ministry accepted the Treaty of London (May 30), which established peace on a far less desirable basis than that proposed by Kiamil Pasha. Naturally, the bitterness of the army party increased, and on June 11 Mahmud Shevket Pasha, the grand vizier and minister of war, was assassinated in the streets of Stamboul. The Young Turk government survived the shock, however. As a stern warning to malcontents, twelve persons were publicly hanged for suspected complicity in the assassination plot, and the committee of union and progress utilized the conspiracy as an excuse for exiling some three hundred of its political opponents. The ministry was reorganized soon after the assassination of Mahmud Shevket Pasha: Prince Said Halim, a wealthy Egypto-Turk, but an enemy of the khedive, being a nephew of Ismail Pasha and therefore in line of succession to the khedivate, but for Ismail's compact with the Porte, and an ardent Young Turk withal, became grand vizier and minister of foreign affairs; the former ministers of justice, finance, pious foundations (*Evkaf*), posts and telegraphs, and education, retained their portfolios; the following new appointments were made: President of the council, Halil Bey; sheikh-ul-Islam, Mehmed Essad Pasha; interior, Talaat Bey; war, Izzet Pasha; marine, Mahmud Pasha; commerce and agriculture, Suleiman el Bustani; and public works, Osman Nizami Pasha.

The position of the Young Turk ministry was materially strengthened in July by the circumstances of the quarrels among the Balkan allies over the division of the spoils and the consequent second phase of the Balkan War, in which Turkey, as one of the assailants of Bulgaria, was enabled to reoccupy Adrianople on July 22. Hadji Adil Bey, former minister of the interior, was at once appointed vali of Adrianople, and a complete Turkish civil administration was restored. Thus the Young Turks appeared to have been successful after all in their endeavor to "save the national honor." Rumors of friction between Enver Bey and the ministry on the question of the permanent retention of Adrianople, regardless of the treaty of London, were discredited as soon as it became known that the treaty of Constantinople (September 29) between Bulgaria and the Porte secured definitely to the Ottoman Empire not only Adrianople, but Demotika and Kirk-kilisse also. This astonishing diplomatic victory inspired the ministry with renewed confidence, despite the fact that in order to defray the expenses of the July war, additional foreign loans were required. At the autumn congress of the committee of union and progress, the intention was announced of transforming the committe into an ordinary parliamentary party which, while still stressing a policy of "Ottomanizing" the empire, would henceforth direct its chief activity towards the encouragement of education, commerce, and national industry.

OUTCOME OF THE WAR. The conclusion of the Balkan War found Turkey shorn of the bulk of her European possessions. And a heavy price she paid for her defeat. Not only were Albania, Macedonia, the Ægean Islands, Crete, and a part of Thrace lost to her, but thousands of Mussulman refugees from the sacrificed districts had to be provided for in the Asiatic provinces, and economic depression combined with political unrest to distract the whole empire. Moreover, the military losses were very heavy. It was officially reported before the July war that the Turkish losses in the struggle worked out at 60,000 in southern Macedonia, 20,000 in central Macedonia, and in Thrace, 10,000 at Kirk-kilisse, 35,000 at Lule Burgas, and 3500 at Tchataldja. Out of some 180,000 troops who had borne the brunt of the fighting, at least one-third were permanently lost, killed, or disabled, and about 50,000 had been captured. Finally, the war added materially to the country's indebtedness, and failure to conclude a loan agreement with the foreign powers in 1913 left the Turkish exchequer in a parlous condition. In the meantime, temporary relief was secured by the sale of treasury bonds to the amount of 100,000,000 francs to the French firm of Perrier and Company. These bonds were described as the balance of 120,000,000 francs of treasury bonds bearing 5 per cent. interest, the emission of which was authorized by the law of February 2. It was arranged that the revenue accruing from the war tax on real estate, whereby these bonds were guaranteed, should be handed over to the agencies of the public debt administration as they were encashed. In what financial straits Turkey found herself is eloquently witnessed by the fact that the French firm took the bonds at 80 with interest of 12½ per cent.

THE ARMENIAN QUESTION. One of the distressing accompaniments of the Balkan War was a recrudescence of the difficulties between the Armenians and their Moslem neighbors. Although there was no uprising on the part of the Armenians against Turkish sovereignty, but rather a tendency to serve in the army as loyal defenders of the empire, nevertheless they were distrusted as Christian sympathizers with the triumphs of the Balkan peoples, and several Armenians were massacred at Rodosto in European Turkey. Then, too, the Armenians of the Asiatic provinces complained bitterly against the general lawlessness and spasmodic attacks of their hereditary foes, the fanatical Kurds, and against a proposal of the Turkish government to settle Mohammedan refugees from Macedonia and Thrace in the Armenian districts. Owing to their failure to secure any alleviation of the condition of their people, the Armenian patriarch and the lay council tendered their resignation. At an extraordinary meeting of the Armenian National Council in May, however, it was decided not to accept these resignations, but to appoint five persons, representing the five political parties into which the Armenians of Turkey are divided, to assist the mixed council in inquiring into Armenian grievances. Subsequently a deputation waited on the grand vizier, who explained that the war had prevented the introduction of reforms, but now that this was virtually over the government as a first step was sending gendarmes to Anatolia; he assured the deputation that the rumors that the government proposed to send Macedonian refugees to Armenian districts as colonists were false. When the war was finally ended and no other steps had been taken to redress Armenian grievances, the Armenians increased their clamor for a larger measure of local self-government in the six vilayets which they largely inhabited: Erzerum, Van, Bitlis, Sivas, Memuret-el-Aziz (Kharput), and Diarbekr. As a protest against the indifference of the authorities, the patriarch again resigned in August and was succeeded by Mgr. Zaven, archbishop of Diarbekr. Under the leadership of the new patriarch, the Armenian committee demanded proportional representation of the two million Armenians in Turkey in the imperial parliament and extensive autonomy for the six vilayets under a national council. The first of these demands was peremptorily rejected as contrary to the terms of the constitution, although Talaat Bey was despatched to investigate the situation in the Armenian districts; the answer to the second demand was deferred until reform proposals of Russia and Germany had been considered by the government. At a discussion on December 25, between the grand vizier and the German and Russian ambassadors, the principle of reform in the six vilayets was accepted by the Porte, but difficulty was experienced in agreeing upon the details of the scheme. One of the chief outstanding problems was the representation of Moslems and non-Moslems in the general assembly, as the Porte was reluctant to allow equal representation to the two sections.

THE OTHER ASIATIC PROVINCES. It was not only in the six Armenian vilayets that a strong reaction set in against the Ottomanizing tendencies of the Young Turk party and in favor of larger measures of local autonomy. In May, great opposition was reported from Basra, near the Persian Gulf, to new laws recently promulgated for the administration of that vilayet. The Arabs felt that too much power was entrusted to the vali, that there was too much centralization. These protests were offset with vague promises of reform, and meanwhile troops were sent to Basra from Bagdad.

It was in the vilayets of Beirut, Syria, and Aleppo that the Arabs were loudest in demands for "home rule." The suppression of the Syrian decentralization league of Beirut by the Young Turks incited no little unrest in those districts throughout the spring months, and the Arab congress, sitting in Paris in July, made vehement protest against the government at Constantinople. About the same time, a petition, signed by 1700 representative citizens of Beirut, was addressed to the grand vizier requesting (1) repeal of the vilayet's law, (2) acceptance of former programmes of reforms; (3) reopening of the decentralization league's club-house. The Young Turk ministry soon indicated a willingness to conciliate and compromise. In August a formal agreement between

Turks and Arabs was reported from Beirut, involving the selection of Arab-speaking officials for the Arab vilayets, the appointment of at least three Arab ministers and at least five Arab valis, the use of Arabic as an official language in the Arab provinces and the control of expenditure on public works by the provincial councils. The new vali of Beirut, Samy Bekir Bey, appointed in November, was very friendly to the Arabs.

Meanwhile, in July, a new scheme was announced by the Turkish ministry for the division of the Asiatic vilayets into a group of inspectorates-general. According to the plan, which was described as a compromise between the Young Turks and the decentralizers, there would be two Armenian inspectorates-general, comprising the vilayets of Adana, Sivas, Kharput, Diarbekr, Bitlis, Van, and Erzerum. The other groups would be Yemen, Syria, Irak, and Anatolia. At the head of each such division would be an inspector-general, appointed for five years, assisted by foreign advisers, and entrusted with extensive powers. The powers of the valis would remain unchanged, but any vali might be dismissed by his inspector-general without reference to the minister of the interior at Constantinople.

FOREIGN CONCESSIONS IN THE ASIATIC PROVINCES. Work on the construction of the great Bagdad Railway was quickened during 1913 as a result of the conclusion of protracted negotiations among several great powers which were interested in securing concessions from Turkey. It will be remembered that this particular undertaking was primarily Germany's: Russia so recognized it by an agreement signed at Potsdam in 1911, and then both Great Britain and France acquiesced. According to the Franco-German agreement, the Ottoman bank will hand over to the Deutsche bank its financial interest in the Bagdad Railway; the Deutsche bank will buy this stock and will renounce in favor of interested French parties other railway concessions on the Black Sea coast and in Syria; the result will be that Germany will obtain absolute liberty of action as regards the Bagdad Railway and that France will be guaranteed against German competition in other regions.

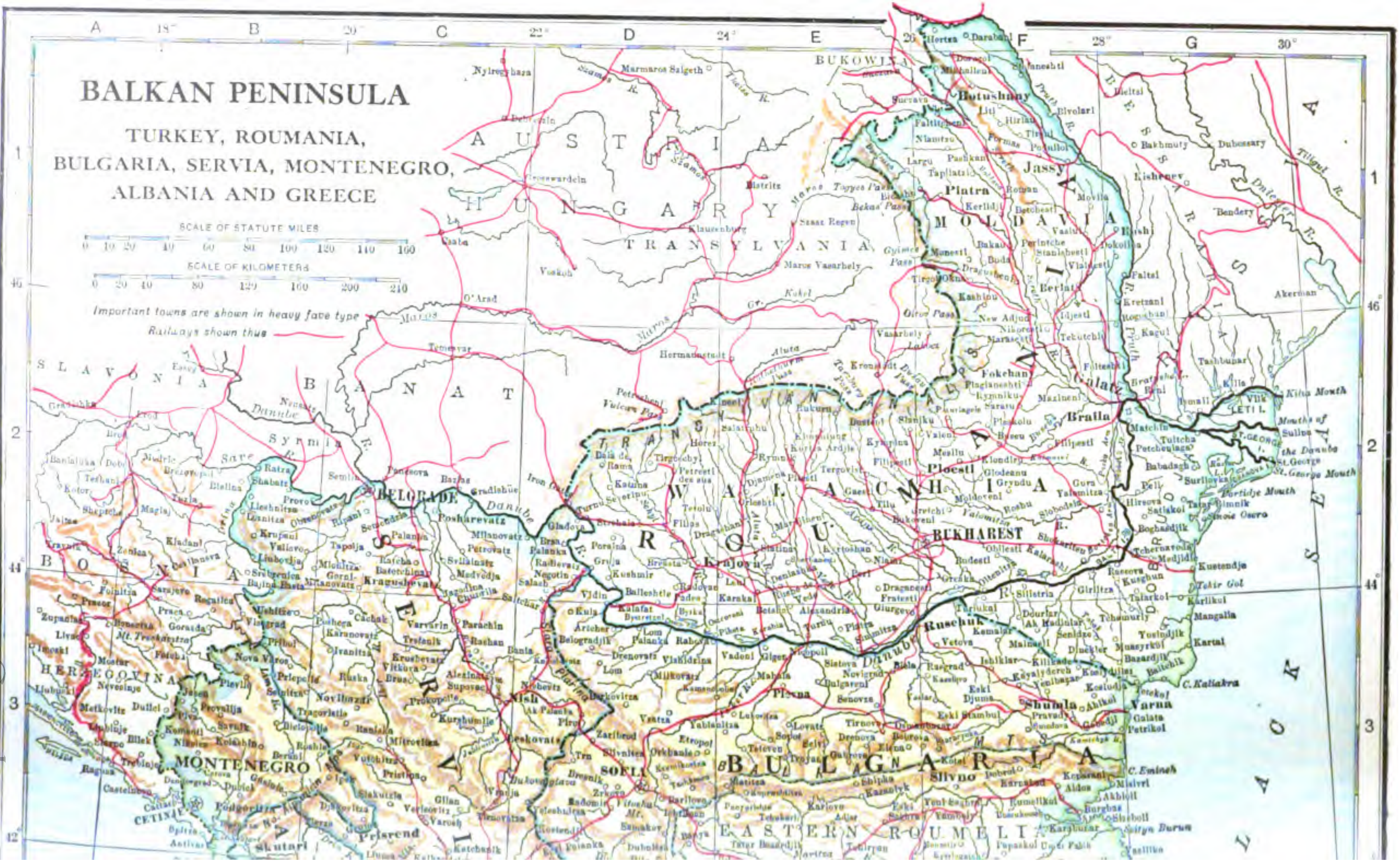
In September, as a result of several weeks' negotiation in Paris, another important agreement was reached between the French and Turkish governments, by which France gets the right to extend the Aleppo-Homs Railway from Rajak, its southern terminus, to Lydda on the line connecting Jaffa and Jerusalem, and also the right to construct railways in Armenia, from Samsun to Sivas and Kharput, and from Trebizond to Sivas. In return, the French government promised to support, after the signing of definite treaties of peace between the Porte and all the Balkan states, the issue of a Turkish loan of 700,000,000 francs in France and to consent, if other powers agree, to a four per cent. customs increase and an income tax on foreigners resident in Turkey. The importance of French interests in Turkey was expressed by M. Doumergue, the French premier, late in December, who reminded his hearers that French capital invested in Turkey, almost entirely in Ottoman government bonds, amounted in round figures to 3,000,000,000 francs, and went on to say that by recent agreement various measures had been taken to promote French culture in Syria, such as the foundation of a school of law and a school of arts and crafts at Beirut, the contemporary establishment of a "professional" school at Damascus, the introduction of some useful administrative reforms for the benefit of the population of the Lebanon, and the opening of the port of Junieh to the north of Beirut.

British diplomacy was especially directed toward the grant of concessions in Asia Minor and about the Persian Gulf. Provision was made in the summer (1) for the recognition by Great Britain of the suzerainty of the Porte over Koweit, which is to be an autonomous *kaza* of the Ottoman Empire; (2) for a pledge on the part of the Porte not to interfere in the internal affairs of Koweit or in the question of succession, and for the recognition of the conventions concluded between the sheikh of Koweit and the British government; (3) for the abandonment by the Porte of all its pretensions to suzerainty over the peninsula of El Katr, the Bahrein Islands, Muscat, and the territory of the trucial chiefs; (4) for the recognition by the Porte of the right of Great Britain to undertake the duty of lighting, buoying, and policing the Persian Gulf. Great Britain declined to allow the extension of the German Bagdad Railway to Koweit. Turco-British negotiations dragged on throughout the year over the navigation of the Tigris, Euphrates, and the Shatt-el-Arab, and the frontier between Turkey and Persia.

Along with Germany, France, and Great Britain, Italy was vying for commercial privileges in Turkey. Her prolonged occupation of the twelve Ægean Islands which she had captured in the course of the Turco-Italian War of 1911-1912, afforded her a strategic centre in the Near East, and it was frequently rumored that she was retaining the islands in order to wring from Turkey valuable railway concessions in Asia Minor and in Syria. In this policy, Italy naturally encountered opposition not only from Turkey and Greece, but also from France and Great Britain.

MISCELLANEOUS. Following the conclusion of the Balkan War, elaborate plans were perfected for the construction of a new Turkish navy, and late in December the purchase of a superdreadnought from Brazil was rumored. It is not unimportant to record, on account of his great political, as well as religious, influence over the Orthodox Christians within the Ottoman Empire, that a successor was elected on February 10 to Joachim III., Orthodox patriarch of Constantinople, who died on November 26, 1912. The new patriarch was Germanos Kavakopoulos, born in 1835, in Stamboul, educated at Jerusalem and Athens, made metropolitan of Kos in 1864, and transferred to the see of Chalcedon in 1897. He assumed the title of Germanos V.

TURKEY AND THE BALKAN PEOPLES. The most important events of 1913 in southeastern Europe were connected with two more or less distinct wars: (1) that begun in October, 1912, and concluded in May, 1913, between Turkey on one side and the Balkan allies—i.e. Bulgaria, Servia, Greece, and Montenegro—on the other; and (2) that in July, 1913, between Bulgaria on one side and her former allies together with Rumania and Turkey on the other. These two conflicts can be conveniently



BALKAN PENINSULA

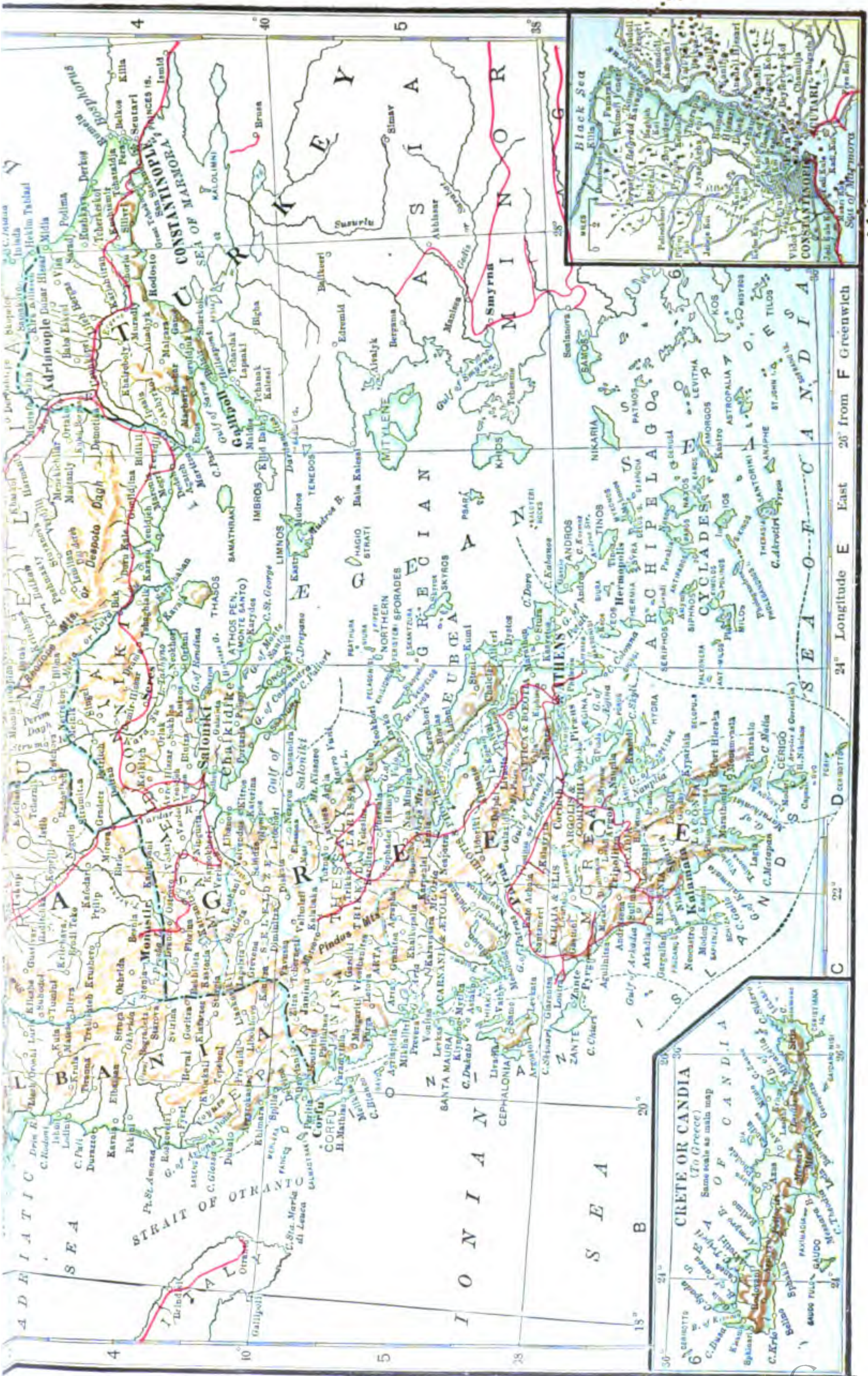
TURKEY, ROUMANIA,
BULGARIA, SERVIA, MONTENEGRO,
ALBANIA AND GREECE

SCALE OF STATUTE MILES

SCALE OF KILOMETERS

Important towns are shown in heavy face type

Railways shown thus


TURKEY
ASIA MINOR
GRECIAN ARCHIPELAGO
ÆGEAN SEA
IONIAN SEA
ADRIATIC SEA
SEA OF CANDIA
STRAIT OF OTRANTO
SEA OF MARMORA
ALBANIA
MACEDONIA
GREECE
ITALY
CONSTANTINOPLE
ATHENS
Saloniki
Adrianople
Smyrna
CYCLADES
NORTHERN SPORADES
EUBŒA
MOREA
Black Sea
CRETE OR CANDIA
(To Greece)
Same scale as main map
SEA OF CANDIA
Longitude East 26° from Greenwich
20°
22°
24°
26°
38°
40°

treated together as the "Balkan War," the course of which as well as the international aspects and immediate results of which will concern us in the present article. The genesis and early history of the war are discussed at some length in the 1912 YEAR BOOK, TURKEY AND THE BALKAN PEOPLES. See also in this volume ALBANIA, BULGARIA, CRETE, GREECE, MONTENEGRO, RUMANIA, SERVIA, and TURKEY.

FIRST LONDON PEACE CONFERENCE. Negotiations for peace between Turkey and the Balkan allies, opened in London on December 16, 1912, were deadlocked by absolutely contradictory views on three weighty matters. In the first place, both Bulgaria and Turkey maintained that Adrianople was essential to their national safety. Secondly, Greece demanded the cession by Turkey of all the Ægean Islands, which are populated almost exclusively by Greeks, while Turkey insisted that the retention of some of them (e.g. Imbros, Tenedos, and Lemnos) was necessary to her for the protection of the Dardanelles, and of others (e.g. Chios and Mytilene) for the defense of the vilayets of Asia Minor. Finally, the allies not only opposed the assumption of any share of the Ottoman debt, but also urged the payment by Turkey of a war indemnity: to yield to this claim would totally destroy Turkish credit. The Turkish diplomats, therefore, rejected the victors' terms of peace, and on January 6 the allies suspended the conference. Ten days later, the great powers, fearful of a resumption of hostilities in the Balkans, advised the Porte, in a collective note, to yield on the question of the surrender and cession of Adrianople and to leave the other unsettled problems to the powers for adjudication. For a few days it was believed the Porte would act favorably upon the collective note, and a council of notables, assembled at Constantinople on January 22, gave its assent, but on the next day a *coup d'état* in the Turkish capital overthrew the conciliatory ministry of Kiamil Pasha and put in its place a "no surrender," Young Turk cabinet, headed by Mahmud Shevket Pasha and inspired by the patriotic Enver Bey (see TURKEY, *Political Crises*). The only concession which the new government would propose was one for the division of Adrianople and the grant of autonomy to the Ægean Islands: this was, of course, unacceptable to the Balkan allies, and thus the first London conference came to naught.

RESUMPTION OF HOSTILITIES. Hostilities were resumed between the belligerents on February 3. Although the Bulgarians were unable to carry the fortifications at Tchataldja and press on to the capture of Constantinople, they successfully combated every effort of the Turks to advance from their strong entrenchments. A determined attempt of Enver Bey to turn the Bulgarian right flank by means of an advance from the Gallipoli peninsula toward Rodosto was thwarted after several weeks' rather desultory fighting. Meanwhile the sieges of Adrianople, Janina, and Scutari—the only positions west of Tchataldja still held by the Turks—were vigorously pushed by the allies. On March 6 Janina surrendered to the Greeks. The Bulgarians with Servian help repeatedly stormed Adrianople; two forts were taken on March 9, and on the twenty-sixth the whole eastern line of defenses was carried and Shukri Pasha was compelled to capitulate with some 30,000 men. The allies who victoriously entered Adrianople found a city whose buildings had suffered from cannon and fire and whose population were on the verge of starvation. Outside of Constantinople and a small stretch of adjacent territory, only Scutari was left to the Turks of all European Turkey. The fate of Scutari, involved as it was in a thorny international problem, will be discussed later under *The Albanian Question*.

THE GREEK NAVY. Before the close of 1912, the small but efficient Greek navy had already distinguished itself by seizing practically all the Ægean Islands not actually occupied by Italy. Thus landings had been effected on Lemnos on October 21; Thasos, Imbros, and Strati on October 31; Psara on November 5; Tenedos, November 6; Nikaria, November 17; Mytilene, November 21; and Samos and Chios, November 24. Some fighting occurred on Chios, Samos, and Mytilene, but by the middle of January the Turkish troops had surrendered or been dispersed. Throughout February and March Greek warships performed valuable service in preventing the Turks from reoccupying any of the islands or from transporting reinforcements from the Asiatic provinces to Macedonia and Thrace to the embarrassment of the Bulgarians. One result of the activity of the Greek fleet was that Turkish shipping was almost at a standstill in the Ægean. On the whole, Turkish warships proved quite ineffective, although the *Hamidieh* made several long cruises through the Ægean and to Egypt, and once into the Adriatic, managing to elude the Greek fleet and to terrify Greek merchant vessels.

THE ALBANIAN QUESTION. From the very beginning of the Balkan War, great fear was felt lest the spark kindled in southeastern Europe should be communicated to the great powers and set the whole continent ablaze. It was about the disposition of Albania that the greatest danger existed at all times. Not only did Montenegro aspire to annex Scutari, but Greece and Servia desired to divide the larger part of Albania between them. Servia, in particular, cut off for many years from the Adriatic by Turkey and Austria-Hungary and now from the Ægean by the Greek occupation of Salonika, felt she had a wonderful opportunity to secure Durazzo or some other Albanian port which would give her territorial and commercial access to the Mediterranean, and with this Servian ambition Russia was known actively to sympathize. On the other hand, both Austria-Hungary and Italy had important economic and political interests in Albania and no desire to encounter Servian competition on the Adriatic; neither Austria-Hungary nor Italy would allow the other to possess the country; and both stood together, therefore, in insisting that Albania, since it manifestly could not remain Turkish, should be erected into an autonomous principality. The state of European alliances caused Germany to champion the policy of Italy and Austria-Hungary and brought France and Great Britain to the support of Russia. Only the earnest endeavors of all the foreign offices of Europe succeeded in effecting a compromise of the conflicting purposes and thus preventing a general war.

As early as November 28, 1912, the matter had reached its first acute stage by the capture of Durazzo by the Servians. This was settled, however, by an agreement among the powers, announced at London on December 20, accepting the principle of Albanian autonomy and likewise of the commercial access of Servia to the Adriatic. With this understanding, Servia evacuated Durazzo.

The next difficult stage in the negotiations was the determination of the boundaries of the proposed principality. In deference to the strenuous representations of Austria-Hungary, though only after protracted debate and in the face of bitter protests from Montenegro, the powers at length agreed to incorporate Scutari in the new state, but repeated their promise that Servia should be given commercial access to the Adriatic over a neutral railway. In return, Russia and her allies obtained the consent of Austria-Hungary and Italy that the almost exclusively Albanian towns of Ipek, Djakova, Prisrend, and Dibra, on or near the River Drin, should go to the Serbs. The northern and eastern frontiers of the Albanian state were accordingly agreed upon by the powers on March 26. The immediate result was a relaxation of tension among the powers and the simultaneous withdrawal of the Russian and Austro-Hungarian troops from the Galician frontier.

Servia acquiesced in the arrangement, but Montenegro proved so obstinate that another crisis was soon precipitated. On April 1 King Nicholas was notified that the powers had unanimously agreed to blockade his coast if he did not raise the siege of Scutari. His answer was that the proposed action of the powers was a breach of neutrality and that Montenegro would not alter her attitude until she had signed a treaty of peace. At once the warships of all the powers except Russia, which had none in the Mediterranean, blockaded Antivari. On April 15, owing to the pressure of the powers, the Servian troops were recalled from Scutari. Nevertheless, the Montenegrins persisted alone and on April 22 compelled Essad Pasha to surrender Scutari. Two days later the Austro-Hungarian government demanded that vigorous action be undertaken by the powers to put independent Albania in possession of Scutari according to the agreement of March 26. At once the greatest excitement prevailed throughout Russia; Pan-Slavic demonstrations against the Austro-Hungarian policy were held in many of the large cities. In Austria-Hungary military preparations were renewed on a large scale, and on May 1 the Dual Monarchy gave notice that it would undertake individual action should Montenegro not agree to the ultimatum. Italy, unwilling to permit Austria-Hungary individual action in Albania, announced that she would support her ally. As the result of all the pressure brought to bear upon him, King Nicholas on May 5 yielded and placed Scutari in the hands of the powers, just in time, as Sir Edward Grey informed the House of Commons, to prevent an outbreak of hostilities between Austria-Hungary and Russia. On May 14 the sailors from the international fleet occupied Scutari in the name of the principality of Albania. Subsequent international complications in connection with the Albanian question are noted in a paragraph below, *International Aspects of the Situation*.

Renewed Peace Negotiations. Already, on March 1, the powers had offered to mediate between Turkey and the Balkan allies. The Porte at once consented, and two weeks later the allies were willing to avail themselves of mediation on condition that the western boundary of Turkey be the Rodosto-Malatra line, that Crete and the Ægean Islands be ceded, and that an indemnity be paid by Turkey. The powers, unwilling to afford Bulgaria a foothold on the Dardanelles, insisted on a line from Enos to Midia by way of the Maritza and Ergene rivers; and, as Italian interests especially opposed the union of the Ægean Islands with Greece, the powers proposed to determine later their status. On April 1 the Porte was ready to accept a direct line from Enos to Midia, and the allies were finally induced to agree to these preliminaries: (1) The Enos-Midia line was accepted as a basis for a boundary; (2) the powers reserved absolutely the status of the Ægean Islands for future settlement; (3) the question of a war indemnity and the Ottoman debt would be settled by a financial commission sitting at a later date in Paris; (4) the delimitation of the Albanian boundaries would be determined by the powers. An armistice to this effect was signed at Bulair on April 19 by all the belligerents except Montenegro, which, as has been already noted, was still vigorously prosecuting the siege of Scutari.

Second London Peace Conference. The capture of Scutari by the Montenegrins on April 26 made the truce general, and as soon as King Nicholas had submitted to the powers and surrendered Scutari on May 14 to the international naval force, delegates of all the Balkan allies and of Turkey again set out for London, where, on May 21, they opened their second conference for the discussion of the terms of a general peace. Warned by Sir Edward Grey, the British secretary for foreign affairs, that the powers would not tolerate protracted deliberations, such as had wrecked the first London conference, the Balkan diplomats proceeded promptly with their task, and on May 30 the Treaty of London was signed by representatives of all the belligerents. Its principal provisions were those already suggested by the powers:

(1) The boundary between Turkey and the allies to be a line drawn from Midia to Enos, to be delimitated by an international commission;

(2) The boundaries of Albania to be determined by the powers;

(3) Turkey to cede Crete to Greece;

(4) The powers to decide the status of the Ægean Islands;

(5) The settlement of all the financial questions arising out of the war to be left to an international commission to meet at Paris.

Disruption of the Balkan Allies.[*] The Treaty of London was a solemn witness to the fact that within eight months the Ottoman Empire had been shorn of all her European possessions except Constantinople and a small tract of adjacent land east of the Maritza River. That this had been done was due mainly to the union and harmony that had characterized the Balkan allies. But the surprising rapidity and ease with which the result had been achieved only served in the long run to whet the ambition of each of the Balkan states to secure the bulk of the spoils. Even before the conclusion of the Treaty of London, evidences were not lacking of a bitter rivalry and lamentable disunion among the victorious allies which were to lead, as the event proved, straight to another armed conflict. To understand the genesis of the second phase of the Balkan War, it is necessary to consider the validity of the claims advanced by the various states.

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[*] The two following sections are taken, in part, from an article by Mr. S. P. Duggan, "The Balkan Adjustment," in the *Political Science Quarterly*, vol. 28, pp. 627-45.

When the secret treaty of alliance between Bulgaria and Servia against Turkey was signed in March, 1912, a division of the territory that might possibly fall to them in case of war was agreed upon. Neither Bulgaria nor Servia ever officially published the treaty in full, but from the version printed in *Le Matin* (Paris) in November, 1913, we know what the division was to be. A line running from a point just east of Kumanova to the head of Lake Ochrida was to divide the conquered territory between Bulgaria and Servia. This would give Monastir, Koprili, Ochrida, Prilip, and Istib to the Bulgarians—a great concession on the part of Servia. Certain disputed towns near the proposed line were to be left to the arbitrament of the czar of Russia. The chief aim of this division was that Servia should obtain a seaboard upon the Adriatic, and Bulgaria upon the Ægean. Incidentally Bulgaria would obtain western Thrace and the greater part of Macedonia, and Servia would secure the greater part of Albania. These schemes had been entirely upset by the course of events. "Bulgaria's share had been considerably increased by the unexpected conquest of eastern Thrace, including Adrianople, whereas Servia's portion had been greatly diminished by the creation of an independent Albania out of her share. Moreover, M. Pashitch, the Servian prime minister, maintained that whereas by the treaty of alliance Bulgaria was to send detachments to assist the Servian armies operating in the Vardar valley, the reverse had been found necessary and Adrianople had been taken only with the help of 60,000 Servians and by means of the Servian siege guns. Equity demanded that the new conditions which had arisen and which had entirely altered the situation should be given consideration and that Bulgaria should not expect the preliminary engagements to be carried out." The answer of Dr. Daneff, the Bulgarian foreign minister, "was that Bulgaria bore the brunt of the fight; that, had she not kept the main Turkish force occupied, Servia and Greece would have been crushed; that a treaty is a treaty, and that the additional gain of eastern Thrace in no way invalidated the old agreement."

The recriminations between Greeks and Bulgarians were quite as bitter. The treaty of alliance between them, signed in September, 1912, contained no provision for any division of conquered territory, and this fact enabled each to indulge in the most extravagant claims. The main bone of contention was the possession of the fine port of Salonika. At the very beginning of the Balkan War both states pushed forward troops to occupy that city. The Greeks arrived first, and their garrison was still much stronger numerically. Moreover, they maintained that, except for the Jews, the population, trade, and education in Salonika are chiefly Greek. "M. Venezelos, the Greek prime minister, insisted also that the erection of an independent Albania deprived Greece of a large part of northern Epirus, as it had deprived Servia of a great part of Old Servia, and Montenegro of Scutari. In fact, he asserted, Bulgaria alone would retain everything she hoped for, securing nearly three-fifths of the conquered territory and leaving only two-fifths to be divided among her three allies; and this, despite the fact that but for the activity of the Greek navy in preventing the convoy of Turkey's best troops from Asia, Bulgaria would never have had her rapid success at the beginning of the war. Finally, he strenuously objected to the whole seaboard of Macedonia going to Bulgaria, as the population where it was not Moslem was largely Greek." The answer of Dr. Daneff to the Greek contention "was to the effect that Greece already had several good ports on the Mediterranean, while Bulgaria had none, and that Bulgaria would have to spend immense sums on either Kavala or Dedeagatch to make them of any great value. Moreover, as a result of the war, Greece would get Crete, at least part of the Ægean Islands, and a good slice of the mainland. She had suffered least in the war and was really being overpaid for her services."

Behind all these formal apologies were the conflicting ambitions and the racial hatreds which had existed from time immemorial and which no discussion could effectually resolve. It had been a source of surprise that the Christian peoples of the Balkans were able to unite in 1912 on any terms; it was a greater surprise that they had remained united long enough to wage an eight-months' war against Turkey; it surprised no one that now, over such rich booty, they should fall to quarreling. The normal atmosphere of the Balkans was restored.

Preparations for a Second War. Even before the surrender of Adrianople by the Turks, on March 26, military conflicts had taken place between Bulgarians and Servians and between Bulgarians and Greeks. On March 12 a pitched battle occurred between the latter at Nigrita; and though a mixed commission at once drew up a code of regulations for use in towns occupied by joint armies, very little attention was subsequently paid to it. The Servians shortly afterwards expelled the manager of the branch of the National Bulgarian Bank at Monastir, a step which elicited emphatic protests from Sofia against the policy of Serbizing districts in anticipation of the final settlement. On April 17 M. Pashitch informed the Servian Skupschtina that his government would refuse to be bound by the terms of the treaty of alliance of March, 1912. From that date until the signing of the Treaty of London on May 30 the recent allies carried on an unofficial war, which consisted chiefly of combats of extermination marked by inhuman cruelty. After that event each of the combatants strained every nerve to press forward its armies and to occupy new territories, while each continued to accuse the other of violating every principle of international law. The ambassadors of the powers at the capitals of the Balkan states made urgent representations to the respective governments to restrain their armies, but without effect. On June 10 the Servian government dispatched a note to Sofia demanding a categorical answer to the Servian request for a revision of the treaty of alliance. On June 11 the czar telegraphed to King Peter and King Ferdinand appealing to them to avoid a fratricidal war, reminding them of his position as arbitrator under the former treaty, and warning them that he would hold responsible whichever state appealed to force. "The state which begins war will be responsible before the Slav cause." This well-meant action had an effect the opposite of that hoped for. In Vienna it was looked upon as an indirect assertion of moral guardianship of Russia over the Slav world. The Austrian press insisted that the Balkan states were of age and could take care of themselves; if not, it was for Europe, not for Russia, to control them. The political horizon grew still darker when one week later Dr. Daneff answered the Servian note in the negative. This resulted in the Servian minister withdrawing from Sofia on June 22.

Bulgarian troops had already been set in motion westward from their entrenched positions at Tchataldja and Adrianople. The general plan of the war office at Sofia was to send one force to operate against the Greeks along the line of the Salonika-Seres railway and to surprise the Servians by dispatching masses of Bulgarian troops into the home country of Servia by way of the passes leading directly from Sofia through the western mountains. Such a plan would separate the Greek and Servian forces, and at the same time would cut off the Servian armies operating in Macedonia from their base of supplies and require their immediate recall for the defense of the home territory. Against combined Servia, Greece, and Montenegro, Bulgaria could oppose at least equal forces; if that were to be the only alignment in the impending war, Bulgaria stood an excellent chance of appropriating the lion's share of Macedonia. But just at this juncture diplomatic relations between Bulgaria and Rumania reached a breaking point; and Rumania was the decisive factor in the second war.

THE ATTITUDE OF RUMANIA. It had astonished many students of international politics that Rumania, throughout the first phase of the Balkan War, had maintained a strict neutrality. Ever since the Russo-Turkish War of 1877, when she had won her independence and at the same time been deprived by Russia of her valuable province of Bessarabia, Rumania had directed her foreign policy in harmony with that of Austria-Hungary and had, therefore, been considered a true friend of the Triple Alliance. Certainly Austria-Hungary had repeatedly used Rumania as a counterpoise to Servia and Bulgaria; thus, in 1903, when the Macedonian question was particularly acute and it then seemed that action would be taken by Bulgaria and Servia against Turkey, Rumania declared that she would not tolerate an alteration of the *status quo*, and with this declaration Austria-Hungary fully sympathized. Quite aside from Austro-Hungarian support, however, there had long been three important reasons why Rumania would be interested in any projected change in the Balkan situation. In the first place, scattered throughout Macedonia as well as Greece were many colonies of Rumanians—the so-called Kutzo-Vlachs; their national customs and institutions, long recognized and respected under the old régime, must be guaranteed and maintained under a new. Rumania would hardly allow people of her nationality to be Bulgarized, Serbized, or Hellenized. Secondly, Rumania viewed with jealousy and fear the steady growth of her neighbor, Bulgaria, in power and strength. Crowded in between the military empires of Russia and Austria-Hungary, she naturally looked upon the development upon her southern border of another military state as a menace to her national existence. Finally, against her southern neighbor, Rumania had the weakest kind of frontier; the heights of Silistria, which the delimitation commission of 1878 put in the possession of Bulgaria, commanded absolutely the Rumanian territory opposite and the whole Dobrudja. The rectification of her southern boundary had, therefore, always been one of Rumania's chief aims.

Under these circumstances it was surprising that Rumania had not entered the war at the outset as an ally of Turkey. The only explanations seemed to be that she thought the war was undertaken as one of liberation, that the Kutzo-Vlachs would profit, along with other Christian nationalities of Macedonia, in being freed from Turkish rule, and that she hoped to secure some territorial compensation from Bulgaria as the price of her neutrality. As soon as the first month's campaign of the allies demonstrated that the war was not merely one of liberation, but also one of conquest, Rumania formally demanded of Bulgaria the cession of Silistria and of a small slice of the Black Sea coast sufficient to satisfy strategic military needs. In December, 1912, M. Take Jonesco, Rumanian minister of the interior, was sent to the First London Peace Conference to secure pledges from Dr. Daneff, the Bulgarian envoy, in regard to his government's demand, but he could get no satisfaction. When that conference failed and hostilities were resumed between Turkey and the allies, the relations between Bulgaria and Rumania became very critical. However, in February, at the czar's suggestion, both countries agreed to refer the dispute to an ambassadorial conference at St. Petersburg. As a result mainly of the skillful diplomacy of the French ambassador, M. Delcassé, in reconciling the divergent views of the powers, a protocol was published in May providing for the cession to Rumania of the town of Silistria, together with all the land three kilometers around it, but forbidding either country to erect fortifications in the neighborhood. This award, which transferred no part of the seaboard, was extremely unpopular in Rumania, and the government anxiously awaited some favorable opportunity to denounce it.

Rumania had not long to wait. Early in June it was obvious that Bulgaria was preparing to attack Servia and Greece. At this juncture M. Majoresco, the Rumanian prime minister, notified Bulgaria that his government would not maintain neutrality in a second war without further compensation so as to insure the maintenance of the existing balance of power in the Balkans. The hesitation of Bulgaria in granting this request made Rumania an interested ally of Greece, Servia, and Montenegro against Bulgaria.

THE JULY WAR. Direct responsibility for the Second Balkan War must rest with the Bulgarian government. Undoubtedly Dr. Daneff, the newly appointed premier, was in a most trying position. On one hand were all the

Balkan states demanding what appeared to be ruinous concessions, and on the other were the Bulgarian people clamoring for war. Dr. Daneff threw in his lot with his own nation. He was inspired with a false confidence in the prowess of his army and possibly encouraged by various Russian and Austro-Hungarian machinations, rumors of which have since passed current but the full import of which are still unknown. Dr. Daneff was unwilling to make sufficient concession to detach any of the other Balkan states from their alliance; and, as events proved, he was unable by diplomacy to secure any great power as an ally; the result was that Bulgaria entered the struggle isolated and unfriended. It was a remarkable fact that General Savoff, the hero of the past campaign against the Turks, opposed the truculent attitude of Dr. Daneff's government and took no part in the second war.

Bulgarian troops took the offensive against the Greeks in the Panghaion district and engaged the Servians in a fiercely contested three-days' battle at Slatovo. The new war, thus begun on a large scale on June 30, was not formally recognized until July 5-6, when Bulgaria completed the diplomatic rupture with Greece and Servia, and Montenegro, as the special friend of Servia, declared war on Bulgaria. On July 10 Rumania, whose mobilization was then complete, proclaimed hostilities. Against these overwhelming odds the Bulgarian armies contended in vain. On the north the Rumanians quickly occupied Turtukai and Baltchik and, encountering little or no resistance, dispatched a column to threaten Sofia. On the southwest the advance of the Greeks was more stubbornly opposed, but within three weeks the armies of King Constantine had possessed themselves of all the important towns along the railway between Doiran and Dedeagatch and were advancing up the Struma River toward the Bulgarian boundary and the city of Sofia. Meanwhile on the west the Servians, with Montenegrin aid, had repulsed Bulgarian attacks and closed in upon Kotchana and were preparing to descend through the Osogovska Pass upon the Bulgarian town of Kustendil and thence converge with their other allies upon Sofia.

This was not all of the bitter cup which Bulgaria had to drain. The Young Turk ministry at Constantinople had expected that discord among their late enemies would enable Turkey to tear up the Treaty of London; the opportunity came even sooner than they anticipated. On July 5 the Porte modestly but tormentingly requested the withdrawal of all Bulgarian troops south of the Enos-Midia line. Ten days later, the Turkish government, "moved by the unnatural war," and taking advantage of the evacuation of Tchataldja by the Bulgarian army, dispatched Enver Bey with a large force to recapture Adrianople. This was done with ease on July 22. Thence the Turks advanced on Mustapha Pasha, close to the old Bulgarian boundary.

During the rapid July war many civilians were wantonly slaughtered by the soldiers, and other barbarous outrages committed; and it was especially charged by King Constantine that the Bulgarians had been guilty of the most inhuman atrocities in their treatment of Macedonian villagers. These allegations were vigorously denied by King Ferdinand, who added recriminations against the Greeks and Serbs.

Meanwhile the Rumanians had penetrated to within twenty miles of Sofia, and the artillery of the Greeks and Servians could be heard in the Bulgarian capital. On July 21 King Ferdinand telegraphed to King Charles of Rumania asking him to intercede with the monarchs of Greece, Servia, and Montenegro. A favorable reply was received, and as a result all the belligerents, except Turkey, which was not consulted, agreed to send peace delegates to Bucharest. They assembled in the Rumanian capital on July 29 and at once concluded an armistice.

The Bucharest Peace Conference. Each of the Balkan states was represented at Bucharest by a distinguished statesman: Greece by M. Venezelos, Rumania by M. Jonesco, Servia by M. Pashitch, Montenegro by M. Milanovitch, and Bulgaria chiefly by General Fitcheff. After pointed debates, in which the Rumanian delegate often took a decisive part, the Treaty of Bucharest was signed on August 10. Rumania of course secured an extension of her southeastern frontier to a line drawn so as to include Turtukai on the Danube and Baltchik on the Black Sea and also special privileges for the Kutzo-Vlachs in the other countries. Bulgaria was obliged to abandon Kotchana, Ishtib, and Radovishta to Servia, and Salonika, Doiran, Demirhissar, Seres, Drama, and Kavala to Greece. In making this cession, Bulgaria retained the town of Strumnitza in Macedonia and some seventy miles of sea-coast on the Ægean between the mouths of the Mesta and Maritza. The Serbo-Greek boundary was so drawn that Monastir became Servian, and Vodena and Florina fell to Greece. Subsequently, Montenegro received from Servia, as compensation for assistance in the two wars, a large slice of the sanjak of Novibazar, including Plevlye, Byelopolye, Ipek, and Djakova. For a brief period it was believed that the Treaty of Bucharest, concluded without much regard to the nationalities of the people in the distributed territories, would be revised by Russia or by Austria-Hungary. The new arrangement, however, was upheld by France and Germany, and the Dual Monarchy could hardly demand a change after the German emperor had congratulated Rumania and Greece upon the settlement.

The Turco-Bulgarian Settlement. Now that Bulgaria had settled with the Christian states of the Balkans her new northern and western boundaries, it remained for her once more to determine with the Turks the status of Adrianople. Bulgaria had counted upon the powers to enforce the provisions of the Treaty of London; in fact, on August 7, the representatives of the powers at Constantinople had called collectively upon the Porte and demanded that it respect that treaty. But as time went on, the Turks strengthened their hold on eastern Thrace and were able thereby to convince Bulgaria that most of the powers did not mean what they said—that they were willing to acquiesce in the retention of Adrianople by the Turks in return for economic and political concessions to themselves. Bulgaria was hardly in shape for a third war with the Turks, and nothing therefore remained for her but to yield. On September 3 General Savoff and M. Tontcheff left for Constantinople in order to negotiate a new treaty. By this time the Turks were not content even with the Maritza River as the boundary, but, making the most of their enemy's weakness, they compelled the Bulgarian envoys to renounce Bulgarian claims to Demotika and Kirk-kilisse. By the Treaty of Constantinople, signed September 29, the Turco-Bulgarian line was traced up the Maritza River from its mouth to a point near Mandra and thence, passing west of Demotika, left both that town and Adrianople to Turkey; close to Mustapha Pasha the line bent eastward, and, passing north of Kirk-kilisse and south of Malko Tirnovo terminated on the Black Sea at Sveti Stefan. Thus the territories in Europe allotted to Turkey by the Treaty of London were practically doubled in extent by the Treaty of Constantinople.

The main provisions of this treaty, other than those dealing with boundaries, were as follows:

(1) The *Evkaf* domains (for the support of the Mohammedan religion) in ceded districts to be regarded as private property, and any necessary expropriation to be effected in accordance with Bulgarian law;

(2) A Moslem mufti-in-chief to be elected by the muftis of Bulgaria, his appointment to be subject to the approval of the Turkish sheikh-ul-Islam; he will reside at Sofia and will be paid, as the other muftis are, by the Bulgarian government;

(3) Bulgaria, in regard to the cost of maintaining some 80,000 Turkish prisoners of war, will receive from the Porte only the sum actually disbursed in the form of pay to Turkish officers;

(4) The existing convention of commerce and navigation of February 19, 1911, to be renewed for one year, during which period a new commercial treaty will be negotiated;

(5) Bulgaria to have free use of the Turkish railway between Mustapha Pasha and Mandra, so as to afford direct communication with Dedeagatch;

(6) Disputed points to be referred to The Hague Tribunal.

Græco-Turkish Relations. No sooner had Turkey reached an agreement with Bulgaria than rumors of a Græco-Turkish crisis received credence. The Porte's success in recovering Adrianople and a large slice of Thrace made it eager to undo the Treaty of London in another particular and to secure the renunciation by Greece of all claim to the Ægean Islands. The Turkish envoy who had been sent to Athens in September to negotiate the final religious, racial, and financial settlement in Grecian Thrace and Macedonia, persisted in injecting the question of the Ægean Islands into the discussion, and was eventually recalled before reaching an agreement. Reports at once spread that Bulgaria, in a spirit of revenge against Greece, had formed a secret treaty of alliance with Turkey, or at least would permit the passage of Turkish troops across Bulgarian Thrace in order to attack Greece. In October reservist Anatolian conscripts were called to the colors by the Turkish government, and, on the other side, the headquarters of the Greek army were moved to Kavala, the easternmost point of Grecian Thrace. A new war was clearly threatened between Turkey and Greece; late in October, however, Rumania declared that she would actively support the latter, and at the same time it became evident that Servia and Montenegro were in league with Rumania and Greece to guarantee the Treaty of Bucharest. Under these circumstances the military tension was lessened and direct diplomatic negotiations were resumed between Turkey and Greece. The result was the Treaty of Athens, signed on November 27 and embodying the following chief provisions:

(1) Amnesty granted to all persons compromised by the war;

(2) Inhabitants of ceded territories to become Greek subjects if within three years they do not express a preference for Ottoman nationality and the transference of their domicile outside Greece;

(3) Private properties of the sultan to be maintained intact, while the question of private holdings in the former Turkish crown lands is referred to arbitration at The Hague;

(4) Cost of maintaining private soldiers who were prisoners of war also to be referred to The Hague, but Greece to pay officers;

(5) Property held under the *Evkaf* (Mohammedan foundations) to be respected, but Moslem titles to be abolished;

(6) If, however, Mohammedan convents, mosques, and seminaries find themselves no longer self-supporting, the Greek government to render them financial assistance.

International Aspects of the Situation. Three important matters had been referred by the Treaty of London (May 30) to the adjudication of the powers: (1) The financial adjustments, (2) the delimitation of the boundaries of, and the provision of a permanent government for, the new principality of Albania; (3) the disposition of the Ægean Islands. To determine the first of these matters, an international financial commission was opened at Paris on June 4, under the honorary presidency of M. Pichon, and slowly continued its labors throughout the year. Of the two other matters, some explanation must be attempted.

The northern and eastern frontiers of Albania had been designated by the powers on March 26. On August 11 the ambassadors' conference at London in a general way settled the southern boundary so that it would run from a point south of Cape Stylos to Lake Ochrida, incorporating the *kaza* of Koritza into the new state. Some details as to the subsequent exact delimitation of these boundaries, as well as an account of the provisional governmental arrangements in Albania, are given in the article **Albania**, *History*. The final settlement was not entirely satisfactory to any party. Austria-Hungary and Italy, in whose behalf the new principality had been erected, bewailed its restricted extent. Montenegro complained that she had been robbed of Scutari; on the other hand, the Albanians of the Hoti and Gruda tribes, from their repugnance to Montenegrin sovereignty, waged guerrilla warfare along the northern border. Then, too, Servia nursed her grievance, especially against Austria-Hungary, in being deprived of a seaboard on the Adriatic, and when Albanian raiders on September 22 captured Dibra, which had been awarded to Servia, and extended their incursions as far north as Prisrend, another serious crisis between Servia and Austria-Hungary was precipitated. The Servians at once put a large army in the field, recovered the assailed territory, and early in October took prisoner Issa Boletinatz, the leader of the Albanian marauders. Ostensibly for police protection in the future, Servia pressed her advantage by occupying Albanian lands west of the River Drin. Austria-Hungary at once presented an ultimatum at Belgrade, demanding the prompt withdrawal of Servian troops from Albania. The Servian government signified its acquiescence on October 20. The Græco-Albanian frontier, determined on December 18 on the proposal of Great Britain, was in the nature of an arbitrary compromise between the conflicting pretensions of Austria-Hungary, Italy, and Albania on one side and Greece on the other, and naturally aroused the liveliest opposition of all concerned. It was reported that veritable anarchy reigned throughout southern Albania. Late in December Great Britain proposed that Greece be given one month in which to withdraw her troops from the principality.

Second only to the clash of interests in Albania was that in the Ægean Islands. The population of all these islands was overwhelmingly Greek and loudly in favor of annexation to the Hellenic kingdom. Armed forces of Greece were in actual possession of all the Ægean Islands except the twelve Sporades, which Italy had seized in the course of the Turco-Italian War and still retained. Greece was insistent upon their retention. On the other hand, Turkey demanded their return as essential to the protection of the Dardanelles and the defense of Asia Minor. Despite repeated official disclaimers, it was generally believed that Italy cherished a desire to secure permanent possession of several of the islands; in any event, it was certain that, if all the islands were ceded to Greece, Italian hegemony in the eastern Mediterranean would receive a serious rebuff commercially and strategically. After several months' discussion the powers seemed to have reached an agreement late in December to the effect that Greece should retain all the islands except those occupied by Italy and except Imbros and Tenedos, which should be surrendered to Turkey for the defense of the Dardanelles, with the additional proviso that Greece should erect no fortifications on Chios or Mytilene. Greece promptly protested against the exception of the islands occupied by Italy, while the Turkish government declared that it would not be bound by such an award but would employ force, if necessary, to regain Chios and Mytilene. No final settlement of this thorny question had been reached at the close of the year 1913.

CONCLUSION. At the beginning of the year Bulgaria, Greece, Servia, and Montenegro were in alliance waging war against Turkey. At the close of the year formal peace reigned, but a new alignment of states portended trouble in the future. A new and unruly state—Albania—had appeared on the map at the behest of Austria-Hungary and Italy and to the bitter disappointment of Servia, Montenegro, and Greece. The former Balkan alliance had been dissolved, and in its place Turkey and Bulgaria were arrayed against Rumania, Greece, Servia, and Montenegro, for, whatever might remain of bitterness between Bulgarians and Turks, it was as nothing compared to the rancor that now prevailed between Bulgarians and Greeks and between Bulgarians and Serbs. The Balkan War of 1912-1913 was epochal in the history of the Near Eastern question: it all but expelled Turkey from Europe; it partitioned Macedonia and the greater part of Thrace among the other Balkan states; and it solved the Cretan problem. That such a significant war, fraught as it was with many serious international complications, did not engulf all Europe in a vast armed conflict is a tribute to the growth, in recent times, of a pacific spirit.

Towards the close of the year all the Balkan states were engaged in bringing some order out of the general chaos which characterized their newly acquired territories. Bulgaria faced the greatest problems, for she emerged from the struggle discredited and deprived not only of Adrianople but also of the control of railway connections with Dedeagatch, her single port on the Ægean; and she also encountered no little difficulty in clearing her Thracian conquests of irregular troops who were aiming at the establishment of an autonomous Thrace. But in dealing with this, as with other questions raised by the war, progress was being made. The delimitation of the new frontier between Servia and Montenegro was settled in November (see paragraph, above, *The Bucharest Peace Conference*). About the same time the result of the demarcation of the new Bulgaro-Rumanian frontier was announced, and a joint commission started to delimit the boundary between Servia and Bulgaria. Negotiations were opened at Constantinople on November 27 for a commercial treaty between Bulgaria and Turkey. The definite treaty of peace between Servia and Turkey, signed at Belgrade on December 21, followed in general the principles sanctioned by the Treaty of Athens (see paragraph, above, *Græco-Turkish Relations*). The last stage in the withdrawal of Turkish rule from the Balkans might be said to be the removal from Constantinople to Sofia on December 10 of the exarch, or head, of the Bulgarian Orthodox Church.

The following estimates as to what the Balkan War cost are taken from the *Corriere della Sera:*

FIRST CAMPAIGN, OCTOBER, 1912–MAY, 1913

	Mobilized	Killed	Public Cost
Bulgaria..	350,000 men...	30,000 men...	$300,000,000
Servia.....	250,000 " ...	30,000 " ...	160,000,000
Greece....	150,000 " ...	10,000 " ...	75,000,000
Monte'gro.	30,000 " ...	8,000 " ...	5,000,000
Turkey....	450,000 " ...	100,000 " ...	400,000,000

SECOND CAMPAIGN, JULY, 1913

	Killed	Public Cost
Bulgaria	60,000 men......	$180,000,000
Servia	40,000 "	100,000,000
Greece	20,000 "	50,000,000
Rumania	....	120,000,000

The total loss of life, including those who perished from cholera, must have been close to 400,000, and the public expenditure for the two campaigns and for maintaining armies on a war footing between the campaigns must have cost upwards of one and one-half billions of dollars.

TURKS AND CAICOS ISLANDS. British West Indian islands dependent upon Jamaica. Area, 169 sq. miles; population, 5615 (1911). Imports (1911), £24,722; exports, £23,703; revenue, £8318; expenditure, £7695. There is no debt, and surplus funds invested amount to £5186. Grand Turk is the seat of government. F. H. Watkins was commissioner in 1913.

TURNER, SIR GEORGE, M. D. See LEPROSY.

TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE. An institution for the industrial and higher education of negroes, founded at Tuskegee, Ala., in 1881, by Booker

T. Washington. The students enrolled in the several departments of the institute in the autumn of 1913 numbered 1451. There were 190 members in the faculty. There were no noteworthy changes in the faculty during the year and no notable benefactions were received. The productive funds of the institute amount to about $2,000,000 and the income to about $118,000. The library contains 21,000 volumes. The president is Booker T. Washington, LL.D.

TYPHOID FEVER. A study of the typhoid mortality in the large cities in the United States showed a gratifying fall in the number of deaths. Some cities approximated to the rate in certain European cities, long regarded as models. A comparison of the mortality during 1912 with that of the average death rate in the period 1906-10 shows a decrease in most instances of over one-half. In cities of over 500,000 the deaths from typhoid per 100,000 of the population were as follows: Cleveland, 5.9; Chicago, 7.5; Boston, 8.1; New York, 9.8; St. Louis, 10.4; Philadelphia, 12.5; Pittsburgh, 12.7; Baltimore, 23.9. In cities having a population of 300,000 to 500,000 the typhoid mortality rate was as follows: Newark, N. J., 7.1; Cincinnati, 7.5; Buffalo, 11.4; Minneapolis, 11.5; New Orleans, 14.0; San Francisco, 14.1; Los Angeles, 14.6; Detroit, 17.1; Washington, D. C., 21.2; Milwaukee, Wis., 25.3. In cities having a population from 200,000 to 300,000 the deaths from typhoid were: Seattle, Wash., 7.4; Jersey City, N. J., 7.5; St. Paul, Minn., 10.2; Providence, R. I., 10.3; Rochester, N. Y., 11.8; Kansas City, Mo., 12.8; Denver, 13.0; Portland, Ore., 16.9; Indianapolis, 18.3; Louisville, Ky., 18.9. In cities having a population from 125,000 to 200,000 the figures were: Paterson, N. J., 4.6; Worcester, Mass., 6.6; Scranton, Pa., 8.7; Oakland, Cal., 9.0; Richmond, Va., 16.2; Syracuse, N. Y., 16.8; Columbus, O., 20.2; New Haven, Conn., 24.5; Toledo, O., 33.0; Atlanta, Ga., 35.2; Memphis, Tenn., 56.2. In cities having a population from 100,000 to 125,000 the rate was as follows: Cambridge, Mass., 2.8; Bridgeport, Conn., 7.4; Lowell, Mass., 9.2; Hartford, Conn., 12.7; Omaha, Neb., 13.2; Spokane, Wash., 16.9; Albany, N. Y., 17.7; Fall River, Mass., 18.8; Nashville, Tenn., 30.1; Grand Rapids, Mich., 34.0. Exceptions to this good showing are Detroit and Milwaukee, where the death rate continues to be high. Memphis has the highest typhoid death rate of any large city in the United States, for the past two years. In Syracuse, New Haven, and Toledo the rate has remained practically unchanged. The generally bettered condition is directly traceable to an improved water supply. In nearly every city in which the drinking water had been good, typhoid was steadily declining, and the cumulative decrease in the number of carriers, and through them food contamination, was resulting in an ever-narrowing circle of infection. It was not only in Europe and the United States that typhoid infection was becoming less. Civilized countries everywhere seemed to be experiencing a progressive and remarkable decline in this serious and widespread disease. Purdy recently dwelt on the reduction of typhoid in Australasia in the past thirty years. In the cities of Australia the typhoid death rate (stated in deaths per hundred thousand) fell in Sydney from 51.3 in 1885-90 to 13.2 in 1901-10; Melbourne from 83.8 in 1885-90 to 11 in 1901-10, and in Brisbane from 30.6 in 1885-1900 to 17.6 in 1901-10. In Hobart, the capital of Tasmania, the rate averaged 100.5 in 1885-90, but had fallen to 24.7 in 1901-10. In New Zealand it had diminished to 6.6 for the decade ending 1910, a rate that compares favorably with the typhoid death rate in any European country. Purdy was inclined to attribute this great typhoid decrease chiefly to the introduction of modern sewerage systems.

UGANDA PROTECTORATE. A British east African possession, with an area estimated at 117,681 sq. miles (exclusive of lakes) and an estimated population of 2,843,325 (2,840,469 Africans). Native capital, Mengo; British capital, Entebbe. The products include cotton, coffee, rubber, and cacao. Cattle are raised. The country is practically unfit for inhabitation by whites. Imports (1911), £24,722 (£27,916 in 1910); exports, £23,703 (£24,461); revenue, £8318 (£8645); expenditure, £7695 (£6827). Tonnage entered and cleared, 338,112 (280,735). For the Uganda Railway (so-called) see East Africa Protectorate. Sir F. J. Jackson was governor and commander-in-chief in 1913.

UHLEGITE. See Mineralogy.

UHLER, Philip Reese. An American scientist and educator, died October 21, 1913. He was born in Baltimore in 1835 and was educated at Jones's Latin School and under private tutors. He spent nearly three years at Harvard University as librarian and assistant to Professor Louis Agassiz in the latter's museum of comparative zoölogy, and afterwards explored for Professor Agassiz parts of the island of Haiti. In 1862 he became connected with the Peabody Library at Baltimore, and was afterwards its librarian.

ULSTER PROVISIONAL GOVERNMENT, etc. See Great Britain, *Home Rule Bill*, and *War or Conference*.

UNCINARIASIS. See Hookworm Disease.

UNION COLLEGE. An institution of higher learning at Schenectady, founded in 1795. The enrollment in all the departments of the college in the autumn of 1913 was 402. The faculty numbered 33. In 1913 Dr. E. J. Burg was called from the University of Illinois to head the department of electrical engineering. Dr. C. B. Steinruck became professor of electrical physics. During the year, $14,000 was received for additional scholarship endowments, and $20,000 for general purposes. The productive funds amount to about $850,000, and the income to about $120,000. The library contains about 45,000 volumes.

UNITARIANS. The administrative body of this denomination is the American Unitarian Association, whose headquarters are in Boston. No recent figures for the number of communicants are available. Dr. H. K. Carroll, in his compilation of religious statistics in 1913, uses the figures of the United States census of 1906, which gives to this denomination 70,542 communicants, 477 churches, and 531 ministers. The denomination is active in distributing its literature and in organizing conferences for the promulgation of Unitarian thought. It has considerable strength in Great Britain. Divinity schools are maintained at Cambridge, Mass., Meadville, Pa., and Berkeley, Cal. Missionary work is carried on at many points among Icelandic, Norwegian, and Swedish immigrants of the United States. Among the publications of the denomination are the *Christian Register*, published in Boston; the *Unitarian Advance*, published in New York; and the *Pacific Unita-*

rian, published in San Francisco. The president of the American Unitarian Association is the Rev. Samuel A. Eliot, and the secretary the Rev. Lewis G. Wilson.

UNITED BRETHREN. See Moravians.

UNITED KINGDOM. See Great Britain.

UNITED KINGDOM EMPLOYERS' DEFENSE UNION. See Trade Unions, *Great Britain.*

UNITED PRESBYTERIAN CHURCH OF NORTH AMERICA. This denomination was founded in 1853 by a union of associate and associate reformed churches. For several years negotiations leading to a union of this denomination with the Presbyterian Church in the United States have been under way. The denomination in 1913 included 142,071 communicants, 994 churches, and 990 ministers. There are 13 synods and 72 presbyteries. Missions are maintained in India, Egypt, and the Sudan.

UNITED STATES. Population. The population of continental United States in 1910 was 91,972,266. It was estimated that on July 1, 1913, the population was 95,545,336. The populations of the several States and territorial possessions will be found in the articles dealing with them.

Agriculture. Statistics of agriculture for the United States and its dependencies will be found in the articles dealing with agriculture and agricultural products. See also section *Agriculture* in each State article; and for foreign agricultural statistics, see agricultural section under various countries. Consult, too, the articles Agriculture and Irrigation.

Manufactures. Statistics relating to the chief industries will be found in the articles dealing with them, as cotton, textiles, wool, etc.

Mineral Production. For mineral production, see the general article Mineral Production of the United States, and also, for the individual States, see the section *Mineral Production* under each State. Consult, too, articles on various minerals.

Education. For information in regard to educational matters in the United States in 1912, consult the article Education in the United States. For notes on higher and professional education, see Universities and Colleges. For notes on educational conditions and progress in the different States and territorial possessions, see the paragraphs *Education* under them.

Religion. For information regarding the year's history of the various religious denominations, see the articles on the respective denominations. A general summary of religious conditions and events for the year is given in the article Religious Denominations and Movements.

Foreign Commerce. Of the accompanying tables, Table I. is a summary for the calendar year 1913, given in detail by countries, and also a comparison with the corresponding figures for the calendar year 1912; Table II. is a general summary of the foreign commerce for the fiscal years 1912 and 1913; Tables III. and IV. give, respectively, the chief articles of import and export for the calendar years 1912 and 1913.

From the figures in Table I. it will be noted that Europe is far in the lead among the grand divisions both in selling to and buying from the United States. The imports from Europe in 1913 were $864,986,250, or $34,017,694 less than in 1912. They form practically one-half the total imports. The exports to Europe in 1913 amounted to $1,499,572,363, or $32,120,529 more than in 1912. They form almost three-fifths of the total exports. The balance of trade with European countries in favor of the United States amounted in 1913 to $634,586,113, as compared with $567,447,890 in 1912. North America is second of the grand divisions in importance in exports and imports. There were imported from North American countries in 1913 goods valued at $389,951,176, while the exports aggregated $601,476,159. The imports from North America increased $16,141,260, as compared with 1912, and the exports $28,177,596; the trade balance in favor of the United States increased from $199,488,647 in 1912 to $211,524,983 in 1913. Asia, South America, Oceania, and Africa follow in the order named in imports. In exports South America ranks third, Asia next, followed by Oceania and Africa. With all four of these grand divisions the balance of trade is against the United States, but the total balance of trade for the four divisions amounted in 1913 to only $154,839,147.

Great Britain is by far the most important country in regard to both imports and exports. The total trade of the United Kingdom decreased from $919,957,572 in 1912 to $862,687,385 in 1913. Of this decrease of $57,270,187, $16,242,569 was in exports to the United Kingdom, and $41,027,618 was in imports from the United Kingdom, thus showing an increase of $24,785,049 in the balance of trade in favor of the United States.

Canada, which was third in 1912 with a total trade of $495,965,094, was second in 1913 with trade amounting to $545,619,374. Although there was an increase in the value of both imports and exports, the greater increase was in exports to Canada, and the balance of trade favoring the United States was larger in 1913 than in 1912.

In 1913 Germany dropped from second to third place with a total trade of $536,141,893. This was in spite of the fact that the total trade increased from $516,493,474 in 1912. The trade balance increased in favor of the United States in 1913. The growth in exports was greater than the growth in total trade, and there was a slight decrease in imports from Germany.

France continued in fourth position with an aggregate trade in 1913 of $292,856,409, compared with $289,146,154 in 1912.

From figures prepared by the Department of Commerce the following comparison is made of figures of the import trade of the United States during the decade 1903-1913. From this comparison several notable changes in the conditions of commerce and industry are apparent. In the record of imports it is noted that certain articles, which ten years ago were imported in large quantities, show greatly diminished shipments in recent years; others have remained practically stationary; while still others, chiefly foodstuffs, which a few years ago were produced in sufficient quantities to meet the home demand and furnish a surplus for exportation, are now important factors in the $1,750,000,000 worth of merchandise imported during the calendar year 1913. In order of magnitude, measured by value, the ten leading articles or classes imported in 1913 were hides and skins, coffee, chemicals, drugs, sugar, raw silks, rubber, gutta

TABLE I.

VALUE OF IMPORTS AND EXPORTS, BY COUNTRIES, CALENDAR YEARS 1912 AND 1913

Countries	Imports 1912	Imports 1913	Exports 1912	Exports 1913
	Dollars	Dollars	Dollars	Dollars
Europe:				
Austria-Hungary	18,212,467	19,083,336	24,048,325	22,244,599
Belgium	42,648,251	41,358,376	62,553,352	64,317,469
Denmark	3,467,351	2,466,910	15,942,678	15,942,678
France	133,933,485	138,933,883	155,212,669	153,922,526
Germany	186,042,644	184,211,352	330,450,830	351,930,541
Greece	3,739,559	3,256,038	966,136	1,102,239
Italy	51,817,947	55,322,304	73,874,013	78,675,043
Netherlands	37,072,289	37,638,809	110,322,134	121,552,038
Norway	8,381,489	8,412,129	8,059,945	9,255,038
Portugal	7,377,810	6,351,678	2,778,793	5,251,589
Russia in Europe	26,279,295	22,322,957	26,098,377	25,965,351
Spain	22,221,201	24,412,100	31,671,556	30,773,476
Sweden	10,452,650	12,295,403	10,504,151	13,586,596
Switzerland	23,305,201	24,412,100	853,192	836,182
Turkey in Europe	9,504,163	10,019,001	2,280,891	2,280,891
United Kingdom	312,982,605	271,954,987	606,974,967	590,732,398
Total Europe	900,003,944	864,986,250	1,467,451,834	1,449,572,363
North America:				
Bermuda	635,519	459,159	1,551,915	1,361,700
British Honduras	1,542,437	1,788,786	1,535,097	1,526,689
Canada	120,851,025	142,127,982	375,114,069	403,491,392
Central American States:				
Costa Rica	3,777,296	3,458,069	3,615,568	3,516,700
Guatemala	2,717,378	3,413,514	3,579,830	3,366,596
Honduras	3,043,409	3,314,229	2,682,020	3,753,179
Nicaragua	1,354,492	1,668,403	2,575,031	2,888,026
Panama	4,278,823	4,664,746	24,724,538	24,368,022
Salvador	1,510,573	1,470,322	2,626,698	2,270,964
Total Central American States	16,681,971	17,989,283	39,803,685	40,163,487
Mexico	76,767,931	81,877,434	56,079,150	48,052,137
Newfoundland and Labrador	1,085,302	1,255,504	4,642,301	5,569,749
West Indies:				
British—				
Barbados	322,764	369,497	1,589,826	1,465,404
Jamaica	6,165,472	5,052,591	5,245,378	5,182,971
Trinidad and Tobago	4,585,715	6,681,974	3,263,414	3,301,620
Other British	1,363,689	1,742,218	3,017,858	3,128,289
Cuba	137,890,004	125,093,740	65,228,061	73,238,834
Danish	57,314	31,439	915,743	913,065
Dutch	697,638	562,505	1,075,558	888,023
French	92,731	75,420	1,619,688	1,841,077
Haiti	841,786	810,201	7,246,057	5,698,155
Santo Domingo	4,186,414	3,991,794	5,314,096	5,574,495
Total West Indies	156,203,527	144,411,374	94,515,679	101,231,932
Total North America	373,809,916	389,951,176	573,298,563	601,476,159
South America:				
Argentina	34,007,864	25,575,667	51,170,397	54,980,415
Bolivia	9,829	398	992,527	962,459
Brazil	132,957,326	100,947,735	40,591,519	39,901,203
Chile	22,297,192	29,553,823	15,303,738	16,616,912
Colombia	14,284,781	15,714,447	6,685,010	7,647,165
Ecuador	3,607,285	3,462,567	2,311,861	2,821,646
Falkland Islands	....	....	258	467
Guiana—British	118,970	98,046	1,782,495	1,630,244
Dutch	729,005	813,325	723,544	731,856
French	63,753	31,821	248,494	318,793
Paraguay	13,485	67,220	123,740	215,053
Peru	10,614,221	10,824,587	5,964,619	7,608,916
Uruguay	3,476,533	3,476,533	7,322,726	7,617,110
Venezuela	11,551,691	11,551,691	5,724,002	5,462,441
Total South America	233,731,935	198,239,005	138,944,930	146,514,635
Asia:				
Aden	1,896,217	1,697,241	2,010,183	1,836,927
China	34,147,181	40,120,826	19,799,556	25,299,502
Chosen (Korea)	8,575	4,875	1,363,258	1,173,744
East Indies—British—				
British India	59,280,163	70,360,649	14,868,671	10,966,051
Straits Settlements	26,941,554	31,851,678	3,181,824	4,263,276
Other British	11.427,669	12,859,180	467,696	534,131
East Indies—Dutch	5,891,677	4,995,150	3,224,907	3,358,164
Hongkong	3,352,505	3,474,840	9,730,878	11,085,603
Japan	87,418,042	98,935,957	57,519,654	62,499,819
Persia	1,632,807	1,963,719	118,487	3,126
Russia—Asiatic	2,067,573	2,054,113	1,216,760	944,356

Countries	Imports 1912 Dollars	Imports 1913 Dollars	Exports 1912 Dollars	Exports 1913 Dollars
Siam	85,090	165,422	456,417	736,345
Turkey in Asia	11,011,939	12,127,837	890,005	1,384,990
Other Asia	132,137	110,306	....	....
Total Asia	246,276,758	281,142,931	116,383,053	126,122,351
Oceania:				
British—				
Australia and Tasmania	11,748,556	10,420,053	41,050,329	43,773,819
New Zealand	3,078,805	4,928,779	8,474,765	8,594,688
All other	60,085	176,782	360,043	254,970
French Oceania	1,217,627	1,276,629	717,244	965,406
German Oceania	68,056	4,089	161,237	209,066
Guam	....	....	....	....
Philippine Islands	22,437,356	17,913,173	24,685,931	27,897,164
Total Oceania	38,610,485	34,719,505	75,449,549	81,695,113
Africa:				
British West Africa	314,906	556,311	3,165,268	3,492,735
British South Africa	2,557,328	3,066,349	13,567,263	15,986,676
British East Africa	923,536	830,069	899,084	939,720
French Africa	737,310	785,697	4,301,025	2,233,479
German Africa	419,215	435,530	415,202	582,324
Morocco	93,949	119,354	23,051	77,568
Portuguese Africa	92,178	449,200	2,152,740	2,722,272
Turkey in Africa—Egypt	20,080,161	17,249,867	1,421,146	2,167,941
Tripoli	189,390	54,811	222,767	3,469
Total Africa	25,640,017	23,729,613	27,690,064	28,929,808
Grand Total	1,818,073,055	1,793,038,746	2,399,217,993	2,484,310,429

TABLE II.

FOREIGN COMMERCE, BY GRAND DIVISIONS, FISCAL YEARS 1912 AND 1913

IMPORTS

	Europe	North America	South America	Asia and Oceania	Africa	Total
1912	$ 819,585,326	$334,072,039	$215,089,316	$261,932,365	$22,585,888	$1,653,264,934
1913	892,866,384	361,943,659	217,747,038	313,995,809	26,425,344	1,812,978,234

EXPORTS

	Europe	North America	South America	Asia and Oceania	Africa	Total
1912	$1,341,732,789	$516,837,671	$132,310,451	$189,398,074	$24,043,424	$2,204,322,409
1913	1,479,076,009	617,411,765	146,147,993	194,159,465	29,088,917	2,465,884,149

TABLE III.

CHIEF ARTICLES OF IMPORT, CALENDAR YEARS 1912 AND 1913

Imports

Articles	1912	1913
Art works	$60,739,736	$35,053,730
Automobiles	1,999,587	1,154,873
Chemicals, drugs, and dyes	42,072,827	47,041,478
Coffee	130,544,722	104,671,501
Copper, and manufactures of	44,315,525	44,479,568
Cotton, manufactures of	67,978,226	65,359,542
Earthen, stone, and chinaware	9,711,357	10,608,998
Fibres:		
Manufactures of	69,250,696	80,310,586
Unmanufactured	44,503,812	50,739,957
Fish	14,752,516	17,634,002
Fruits, including nuts	27,502,917	32,100,392
Furs, and manufactures of	7,973,480	7,802,284
Hides and skins other than fur skins	121,169,395	105,873,361
India rubber and gutta percha and crude	111,205,015	84,901,590
Iron and steel, and manufactures of	28,710,805	31,105,078
Precious stones	42,552,720	46,460,608
Leather, and manufactures of	17,843,834	19,714,008
Oils	35,537,943	45,390,321
Silk:		
Manufactures of	25,697,000	31,776,210
Unmanufactured	79,796,062	92,815,211
Spirits, wines, and malt liquors	20,447,070	20,882,258
Sugar	118,475,839	97,129,471
Tea	17,944,284	16,404,293
Tin, in bars, blocks, or pigs	50,371,102	46,900,224
Tobacco, unmanufactured	33,088,373	36,320,964
Wood, and manufactures of	57,678,030	61,067,653
Wool:		
Manufactures of	15,851,713	17,351,423
Unmanufactured	42,210,377	27,710,274

TABLE IV.

CHIEF ARTICLES OF EXPORT, CALENDAR YEARS 1912 AND 1913

Exports

Articles	1912	1913
Agricultural implements	$41,036,327	$35,453,643
Animals	9,449,078	7,071,055
Breadstuffs	161,672,348	203,391,856
Cars, carriages, and other vehicles	46,121,611	58,460,588
Chemicals, drugs, dyes, and medicines	26,074,137	26,787,207
Coal	56,242,896	67,209,514
Copper, and manufactures of	126,770,167	144,909,117
Cotton:		
Manufactures of	52,450,888	55,536,267
Unmanufactured	623,077,439	575,488,090
Fertilizers	11,036,451	11,663,335
Fish	8,945,485	11,345,588
Fruits, including nuts	34,534,544	33,708,695
Iron and steel, manufactures of, not including ore	389,128,420	294,435,060
Leather, and manufactures of	64,400,150	59,994,678
Mineral oils	124,210,382	149,316,409
Meat and dairy products	144,421,752	157,486,469
Naval stores	25,265,488	22,250,435
Oil cake and oil cake meal*	28,869,675	27,761,624
Paper, and manufactures of	21,166,566	21,174,217
Paraffin and paraffin wax	93,002,758	8,176,831
Seeds	2,366,029	2,284,896
Tobacco:		
Manufactures of	5,367,069	6,755,910
Unmanufatcured	46,944,480	52,937,890
Vegetable oils	24,753,849	21,033,089
Wood, and manufactures of	105,840,015	114,777,513

* Not including corn oil cake.

percha, manufactured fibres, cotton manufactures, lumber and other forms of wood, and copper manufactures. Cotton manufactures increased barely 20 per cent. during the decade; chemicals, sugar, and coffee, each decreased about 50 per cent.; hides, silk, rubber, fibre manufactures, and lumber, each decreased more than 100 per cent.; and copper, over 200 per cent.

Foodstuffs showed a remarkable increase in imports during the decade, and especially in the closing months of 1913. Breadstuffs and meats each quadrupled their imports from 1903 to 1913, the former increasing from 6 to 26 million, and the latter from 5 to 20 million dollars. Imports of fruits and nuts rose from 25 to nearly 50 million; cocoa, crude and prepared, from 10 to 20 million; and coffee from 61 to 105 million dollars. The quantity of coffee, however, fell from 974 million to 852 million pounds during the decade, the larger value in 1913 being the result of higher valuation per pound, which advanced from 6 cents in 1903 to practically 12 cents in 1913.

The manufactures showing decreased imports during the decade include many articles, the most important being iron and steel, silk, and wool. Manufactures of iron and steel fell from 41 to 34 million; silk goods from 34 to 32 million; and wool manufactures from 19 to 17 million dollars during the period under review. A similar tendency is strikingly exemplified by sulphur, the imports of which fell from 188,888 tons in 1903 to 14,646 tons in 1913. The rapidly growing production in Louisiana and Texas, which began about ten years ago, has not only supplanted almost entirely the former large imports from Italy and Japan, but has become an article of exportation to the extent of nearly 90,000 tons in 1913.

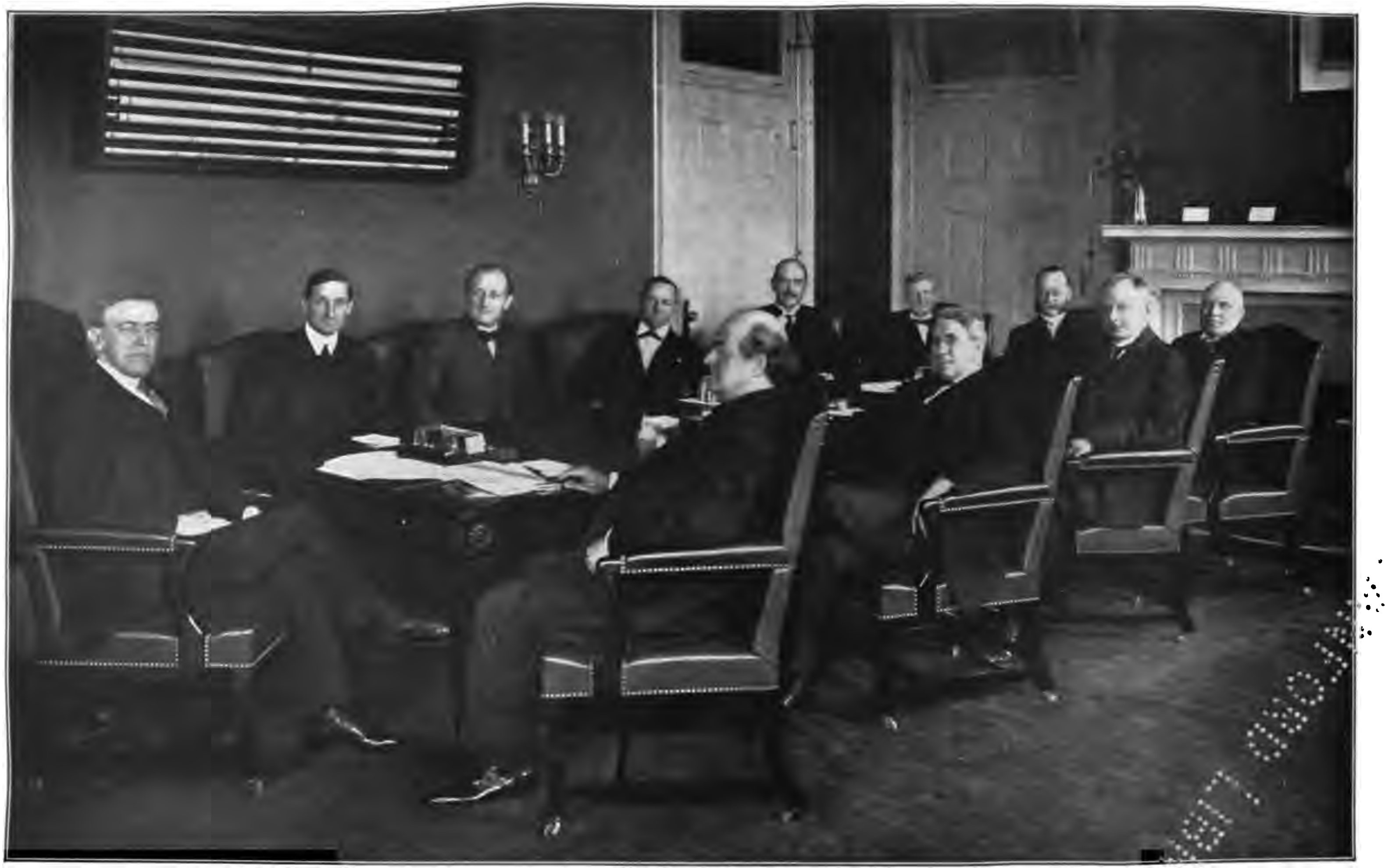
On the other hand, imports of certain crude materials have grown rapidly during the ten years under review. In addition to the great factory materials already mentioned, crude oil shows a large increase, this article coming chiefly from Mexico. Ten years ago its imports were practically nothing. In 1913 they aggregated 713,000,000 gallons. Imports of fertilizers in 1913 were about six times as great as those of 1903, and the 20 million dollars' worth imported in 1913 are an indication of improved methods, and therefore of more extensive cultivation of the soil on the part of American farmers. Imported art works show a remarkable advance in the decade. From $3,000,000 in 1903, they amounted to $35,000,000 in 1913, while certain great art collections imported in 1912 brought the total of the year to about $60,000,000 in value.

Exports of merchandise from the United States in the decade 1903 to 1913 made a greater advance than in the thirty years from 1873 to 1903. In 1873 the total exports were valued at $568,000,000; in 1903, $1,485,000,000; and 1913 $2,484,000,000, a gain of $917,000,000 in the thirty years from 1873 to 1903, and approximately one billion dollars in the ten years ended with December, 1913. To this gain of practically one billion dollars of foreign sales in American products during the decade, raw cotton and miscellaneous manufactures, chiefly of iron and steel, copper, wood and mineral oil were the largest contributors, the five classes named representing about one-half of the total increase during the period.

The ten leading classes of articles exported from the United States in 1913, arranged in order of magnitude, are raw cotton, iron and steel, breadstuffs, meat and dairy products, mineral oils, copper, wood manufactures, coal and coke, leather and leather goods, and raw and manufactured tobacco. When to this group are added cars and carriages, cotton goods, agricultural implements and machinery, fruits and nuts, electrical machinery and appliances, chemicals, drugs and medicines, naval stores, vegetable oils, paper and manufactures thereof, India rubber manufactures, and fertilizers—about 90 per cent. of the aggregate exportation in 1913 has been accounted for. Raw cotton easily maintains its leading position in the list of American exports during the decade. On the other hand, breadstuffs fell from second position in 1903 to third in 1913, and meat and dairy products from third position to fourth, each of these groups having been passed in the meantime by iron and steel, which advanced from fourth to second place during the decade.

Comparing the figures of 1913 with those of 1903, raw cotton exports gained $196,000,000, or 52 per cent., this being a natural result of the world's increasing consumption of cotton goods for the manufacture of which the United States supplies over two-thirds of the raw material. Iron and steel manufactures gained $195,000,000, or about 200 per cent., machinery and engines being the largest factors. Mineral oils made an advance of $76,000,000, or over 100 per cent.; copper manufactures $101,000,000, or 200 per cent., and wood and manfactures thereof, $52,000,000, or about 90 per cent.

Exports of iron and steel manufactures from the United States have increased more rapidly during the past decade than those of Germany or the United Kingdom, while in the production in this branch of industry, the United States led its chief competitors. In 1903 the production of pig iron in the United States was a little less, while in 1912 it actually exceeded, by over three million tons, the combined output in the United Kingdom and Germany. The pig iron production of the United States increased from 18 million tons in 1903 to 30 million in 1912, and that of Germany from 10 to 17½ million; while that of the United Kingdom remained practically stationary at about 9 million tons per annum during the decade. In 1903 the United Kingdom was first, Germany second, and the United States third in the exportation of iron and steel products. The same relative positions were maintained in 1908; but during the past few years Germany has wrested first place from the United Kingdom, and the United States has also gained materially on that country. Figures compiled from official sources by the Bureau of Foreign and Domestic Commerce of the Department of Commerce show that exports of iron and steel (including agricultural implements but excluding electrical machinery and apparatus and ships sold abroad) increased, in the case of the United Kingdom, from 265 million dollars in 1903 to 467 million in 1913, or 76 per cent.; in the case of Germany, from 202 to 484 million, or 140 per cent.; and in the case of the United States, from 117 to 330 million, or 182 per cent. About 85 per cent. of the domestic production of iron and steel is consumed in the United States, thus leaving less than 15 per cent. available for



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PRESIDENT WILSON AND CABINET, 1913

Left to right around the table: PRESIDENT WILSON; W. G. McADOO, Secretary of Treasury; J. C. McREYNOLDS, Attorney-General; JOSEPHUS DANIELS Secretary of Navy; D. F. HOUSTON, Secretary of Agriculture; W. B. WILSON, Secretary of Labor; W. C. REDFIELD, Secretary of Commerce; FRANKLIN K. LANE, Secretary of Interior; A. S. BURLESON, Postmaster-General; L. M. GARRISON, Secretary of War; and W. J. BRYAN, Secretary of State

export. According to the census of 1910 the value of iron and steel manufactures produced in the United States was $1,377,000,000, while the net exports of like articles were $155,000,000, making the home consumption in that year approximately one and one quarter billion dollars. Nevertheless, our iron and steel factories contribute on an average about $1,000,000 worth of products to foreign markets for each business day of the year, the total exports of iron and steel, including agricultural machinery, during the seven months ending with January last having been $173,000,000, or nearly three times as much as in the corresponding period a decade earlier.

In nearly all parts of the civilized world American manufactures of iron and steel are being sold in increasing volume and variety. Last year's exports included not only the lower forms of manufacture but many articles of a highly finished and complicated character. Thus, in addition to 612 million pounds of steel bars and rods, 426 million of wire, 1 billion of sheets and plates, 676 million of pipes and fittings, and 141 million of nails and pikes, there were exported 51 million pounds of bolts and nuts, 56,776 cash registers, 43,558 gasoline engines, 2059 steam engines, 8437 safes, 12,321 bathtubs, $12,000,000 worth of sewing machines, $11,000,000 of typewriters, $16,000,000 worth of metal-working machinery and other miscellaneous machinery sufficient to bring the total up to $128,000,000.

COMMERCE WITH NON-CONTIGUOUS TERRITORIES. The exports from the United States to Alaska in the calendar year 1913 amounted to $21,097,040, compared with $21,322,536 in 1912. Of the total value, manufactures ready for consumption were valued at $11,490,131 in 1913, compared with $11,734,092 in 1912. The imports from Alaska to the United States in the calendar year 1913 amounted to $20,601,413, compared with $23,385,437 in 1912. The exports to Hawaii were valued in 1913 at $29,753,357, compared with $28,029,240 in 1912. The imports from Hawaii were valued at $40,143.953 in 1913, compared with $50,356,841 in 1912. The exports to Porto Rico in 1913 were valued at $32,866,652 in 1913, compared with $33,991,622 in 1912. The imports from Porto Rico to the United States were valued in 1913 at $39,637,332, compared with $41,183,009 in 1912. The exports to the Philippine Islands in 1913 were of a value of $27,870,293, compared with $24,659,150 in 1912. The imports from the Philippines were valued in 1913 at $17,750,415, compared with $22,355.310 in 1912.

RECEIPTS AND DISBURSEMENTS. The following table, compiled from figures given by the Secretary of the Treasury, shows the receipts and disbursements of the Federal government for the fiscal years 1912 and 1913:

Receipts	1912	1913
Customs	$311,321,672.22	$ 318,891,395.86
Internal revenue:		
Ordinary	293.028,895.93	309,410,665.81
Corporation tax	28,583,808.73	35,006,299.84
Sales of public lands	5,392,796.75	2,910,204.69
Miscellaneous	53,451,796.74	57,892,663.64
Ordinary receipts	691,778,465.37	724,111,229.84
Panama Canal receipts *	33,189,104.15	....
Public debt receipts	20,537,645.00	23.400,850.00
Total, exclusive of postal	745,505,214.52	747,512,079.84
Postal revenue	246,744,015.88	266,619,525.65
Total, including postal	$992,249,230.40	$1,014,131,605.49

Disbursements	1912	1913
Civil and miscel.	$172,256,794.41	$ 169,802,304.63
Postal deficiency	1,568,194.88	1,027,368.79
War Department	148,795,421.92	160,387,452.85
Navy Department	135,591,955.72	133,262,861.97
Indians	20,134,839.80	20,306,158.90
Pensions	153,590,456.26	175,085,450.29
Int. on public debt	22,616,300.48	22,899,108.08
Ordinary disbursements	654,553,963.47	682,770,705.51
Panama Canal disbursements	35,327,370.66	41,741,258.03
Public debt disbursements	28,648,327.53	24,191,610.50
Total, exclusive of postal	718,529,661.66	748,703,574.04
Postal expenditures	246,744,015.88	262,108,874.74
Total, including postal	$965,273,677.54	$1,010,812,448.78
Excess of receipts	$ 26,975,552.86	$ 3,319,156.71

* Proceeds of bonds.

The receipts and disbursements for the fiscal year ending June 30, 1914, are estimated by the Secretary of the Treasury in his annual reports as follows:

Receipts	
Customs	$270,000,000
Internal revenue	312,000,000
Corporation and income tax	95,000,000
Miscellaneous	59,000,000
Total ordinary receipts	$736,000,000
Disbursements	
Civil establishment	$177,000,000
War Department	170,000,000
Navy Department	136,000,000
Indian service	21,000,000
Pensions	175,000,000
Interest on the public debt	22,900,000
Total ordinary disbursements	$701,900,000
Surplus for 1912 in ordinary receipts	$34,100,000
Panama Canal disbursements	41,000,000
Miscellaneous redemptions of the public debt	....
Total estimated deficit	$ 6,900,000

COINAGE. The coinage executed at the mints of the United States during the calendar year 1913 was as follows:

Denomination	Pieces	Value
Double eagles	596,338	$11,926,760.00
Eagles	508,071	5,080,710.00
Half eagles	1,324,099	6,620,495 00
Quarter eagles	722,165	1,805.412.50
Total gold	3,150,673	25,433,377.50
Half dollars	1,326,627	663,313.50
Quarter dollars	1,975,413	493,853.25
Dimes	20,270,622	2,027,062 20
Total silver	23,572,662	3,184,228.95

Denomination	Pieces	Value
Five cents	73,659,239	3,682,961.95
One cent	98,437,352	984,373.52
Total minor	172,096,591	4,667,335.47
Total coinage	198,819,926	$33,284,941.92
For Philippine Islands government:		
20 centavos	948,565	189,713.00 pesos
10 centavos	1,360,693	136,069.30 "
1 centavo	5,000,000	5,000.00 "

Nᴀᴛɪᴏɴᴀʟ Dᴇʙᴛ. The amount and classification of the United States national debt at the end of the calendar years 1911, 1912, and 1913 were as follows:

	Dec. 31, 1911	Dec. 31, 1912
Interest-bearing debt at from 2 to 4 per cent. and redeemable from 1908 to 1961, inclusive	$ 963,359,390	$ 964,631,630.00
Debt on which interest has ceased since maturity	1,821,830	1,695,070.26
Debt bearing no interest	379,794,799	374,733,081.90
Gross debt	1,344,976,020	1,341,059,782.16
Cash balance in general fund	126,925,992	143,576,381.22
Net debt	$1,218,050,138	$1,197,483,400.94

	Dec. 31, 1913
Interest-bearing debt	$ 966,823,490.00
Debt on which interest has ceased	1,641,720.26
Debt bearing no interest	370,797,255.40
Aggregate	1,339,262,465.66
Certificates and Treasury notes	1,607,771,969.00
Gross debt	2,947,034,434.66
Cash in Treasury:	
Currency trust funds	1,607,711,969.00
Gold reserve fund	150,000,000.00
Net balance, general fund	111,854,317.93
National bank notes: Redemption fund (included in public debt under requirement of act of Congress, July 14, 1890)	17,209,266.00
Total	$1,886,835,552.93
Net debt	$1,060,198,881.73

The circulation statement, given in the accompanying table so entitled, is from figures compiled by the Treasury Department, and published January 2, 1914.

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Sᴛʀᴇɴɢᴛʜ ᴏғ ᴛʜᴇ Aʀᴍʏ. The authorized strength of the regular army on July 1, 1913, was 4763 officers and 84,810 enlisted men, a decrease of 49 officers and an increase of 3401 enlisted men over the preceding year. In addition, the authorized strength of the Philippine Scouts was 180 officers and 5732 enlisted men, the same as in 1912. The actual strength of the army, on July 1, 1913, was 4665 officers and 75,321 enlisted men, an increase of 195 officers and a decrease of 2514 enlisted men from June 30, 1912. The actual strength of the Philippine Scouts on June 30, 1913, was 180 officers and 5403 enlisted men. On the date given, the army was distributed geographically as follows:

	Officers	Enlisted men	Total
In the United States	3,680	54,626	58,306
In Alaska	53	1,052	1,105
In the Philippines:			
Regular army	446	10,297	10,743
Philippine Scouts	180	5,403	5,583
In China	41	1,166	1,207
In Porto Rico	33	585	618
In Hawaii	271	6,418	6,689
In the Isthmian Canal Zone	51	835	886
Troops en route and officers at other foreign stations	90	342	432
Total	4,845	80,724	85,569

On June 30, 1913, there were 9489 vacancies in the enlisted strength of the army, and there were 98 vacancies in the authorized strength of the officers of the army.

Officers. Of the 4655 commissioned officers on the active list of the regular army on June 30, 1913, 1227, including 66 chaplains, were general officers or officers of the staff corps and departments, and 3438 belonged to the line.

Cɪʀᴄᴜʟᴀᴛɪᴏɴ Sᴛᴀᴛᴇᴍᴇɴᴛ

	General stock of money in the U. S. Jan. 2, 1914	*a* Held in Treasury as assets of the gov'm't Jan. 2, 1914	Money in Circulation	
			Jan. 2, 1914	Jan. 2, 1913
Gold coin (including bullion in Treasury)	$1,924,360,506	$174,664,381	$ 633,940,156	$ 623,159,221
Gold certificates *b*	....	87,778,450	1,027,977,519	955,686,972
Standard silver dollars	565,718,268	1,852,043	74,405,220	74,528,998
Silver certificates *b*	....	11,755,978	477,705,022	477,972,542
Subsidiary silver	178,306,350	14,036,410	164,269,940	156,723,318
Treasury notes of 1890	2,555,000	4,947	2,550,053	2,786,555
United States notes	346,681,016	6,640,146	340,040,870	339,685,179
National bank notes	757,842,961	31,363,386	726,479,575	720,184,475
Total	3,775,464,096	328,095,741	3,447,368,355	3,350,727,580

Population of continental United States January 2, 1914, estimated at 98,181,000; circulation *per capita*, $35.11.

a This statement of money held in the Treasury as assets of the government does not include deposits of public money in national bank depositaries to the credit of the Treasurer of the United States, amounting to $85,202,390.26. For a full statement of assets, see Public Debt statement.

b For redemption of outstanding certificates an exact equivalent in amount of the appropriate kinds of money is held in the Treasury, and is not included in the account of money held as assets of the government.

There were 1065 general and staff officers, and 2617 line officers present for duty on that date, and 162 general and staff officers and 821 line officers absent from commands. Of the 983 officers absent, 750 were on attached duty. During the fiscal year 327 second lieutenants were appointed in the army—187 from the United States Military Academy, 28 from among the enlisted men, and 112 from civil life. These appointments left only two vacancies of second lieutenancies in the line of the army, both in the Coast Artillery Corps. During the fiscal year 73 officers were placed on the retired list. The total number of this list on June 30, 1913, was 1030, compared with 1017 on the corresponding date of the previous year. Of the number retired in 1913, 34 were retired for disability, 22 on their own application, 16 by operation of law, having reached the age limit, 3 by authority of law, having reached 62 years of age, and 2 under special acts of Congress.

Enlisted Men. The actual enlisted strength of the entire military establishment on June 30, 1913, was about 11.2 per cent. below its authorized strength, as compared with 4.5 per cent. on June 30, 1912. Of the 127,827 applicants for enlistment and reënlistment, only about 20 per cent. were accepted.

There was an increase of desertions from the army during the year, the number aggregating 4451, or 4.15 per cent. of the whole number of enlistment contracts in force during the year. This percentage, though larger than the percentage of the three preceding years, is yet smaller than the percentage for any other preceding year since the percentage of 1901. The regiments serving in the United States which had the least percentages of desertions were the Tenth and Ninth Cavalry (colored), and the Fifth Infantry. The regiments with the highest percentages of desertions were the Twentieth and Twenty-first Infantry, Second Cavalry, and the Fourth Field Artillery.

MILITARY OPERATIONS. The most important military operations in 1913 were concerned with patrolling the Mexican border as the result of the disorders in that country. An extensive border control was maintained continuously from the Gulf of Mexico to Sasabe, 31 miles west of Nogales, Ariz., a distance of about 1600 miles. Throughout this stretch of territory, United States troops have protected the border from incursions by individuals or small raiding parties from Mexico, have been continually on the alert to prevent violations of the neutrality laws, and have acted in conjunction with the civil authorities to prevent illegal importations of arms and ammunition into Mexico in violation of the executive proclamation of March 4, 1912. For a discussion of the incidents connected with the revolution in Mexico, see MEXICO, *History*. For the military operations in the Philippines during the year, see PHILIPPINES.

HEALTH AND SANITATION. During 1913, the general health of the army was better than ever before. Typhoid fever has practically disappeared, and the appearance of malarial fevers among the troops of the United States is gradually diminishing. As a consequence of the compulsory immunization of the army by the typhoid prophylactic, only 18 cases of typhoid fever in 1912, and in 1913, one case, that of a recruit, were reported in the entire military establishment. As a result of the improved sanitation and of the care with which applicants for admission are examined, the rate for tuberculosis is gradually diminishing. A marked decrease has also been noted in alcoholism. It was demonstrated in the camps at Texas City and Galveston that with the present system of camp sanitation, troops properly protected by vaccination against small-pox and typhoid fever can live in camps suitably located for an indefinite length of time without increased mortality.

DOMESTIC SERVICE OF THE ARMY. The army in 1913 did good service during or following several national calamities. These included the floods in the Ohio and Mississippi valleys, the tornado at Omaha, the Carmel Valley fire, the Lower Peach Tree, Alabama, cyclone, and forest fires in the Adirondacks.

ARMY CAMPS. During the summer of 1913, two experimental military camps of instruction were held, one at the Gettysburg National Park, Gettysburg, Pa., and the other at the Presidio of Monterey, Cal., each camp lasting for a period of six weeks. The opportunity to participate in these camps was thrown open to all students over 17 years of age who were physically qualified and properly recommended. At the Gettysburg camp 63 universities and colleges were represented by 160 students. At Monterey 85 students from 27 educational institutions on the Pacific coast attended the camp. The experiment was very successful, and promises to lead to excellent results.

For an account of the development of military aeronautics, see the article AERONAUTICS, and for notes on militia, see MILITIA. See also MILITARY PROGRESS.

NAVY

The strength of the navy of the United States in 1913 will be found tabulated in the article NAVAL PROGRESS, where it may be compared with the relative strength of other nations. There were on the active list of the navy on June 30, 1913, 3635 officers, of whom 342 were officers of the marine corps, 51,500 enlisted men, and 9921 marines. The navy was maintained as in previous years in three main fleets and a reserve fleet. The three main fleets are the Atlantic, Pacific, and Asiatic. An account of their details and movements during the year is given below.

ATLANTIC FLEET. On January 4, 1913, Rear-Admiral Charles J. Badger assumed command of the fleet, succeeding Rear-Admiral Hugo Osterhaus. During the summer, drills and exercises were conducted, with Narragansett Bay as the fleet base. There was a carefully-prepared schedule of movements and drills involving alternate weeks at sea and at port. From January to March, combined fleet exercises were conducted from Guantanamo, the usual winter base; and for the first time a division of submarines and the aviation detachment were present, thus permitting more varied and more valued operations than heretofore. Following the outbreak in the City of Mexico in February, 1913, it was found necessary to maintain a fleet of warships in the waters bordering that country both on the Atlantic and Pacific coasts. At the end of the year 26 vessels were stationed off the harbor of Vera Cruz and other ports of Mexico. For an account of incidents connected with this fleet in regard to conditions in Mexico, see article MEXICO, *History*.

PACIFIC FLEET. This fleet, consisting of four armored cruisers, one supply ship, and the torpedo flotilla of destroyers and submarines, had an active year's work under the command of Rear-Admiral W. H. H. Southerland until April 8, 1913, when he was succeeded by Rear-Admiral W. C. Cowles. Conditions in Mexico made it necessary to dispatch a portion of this fleet to the western coast of that country, and in consequence there was during the year very little opportunity for fleet training. In spite of enforced separation of the vessels of this command, nearly all forms of target practice were held, although not under as desirable conditions as would otherwise have been possible. The destroyers and submarines on the Pacific coast were assigned permanently to the Pacific fleet in June, 1913, thus making this practice uniform among all the fleets.

ASIATIC FLEET. This fleet during the year was engaged in the usual operations incident to safeguarding American interests in the Far East and in making friendly visits at various ports on the station.

RESERVE FLEETS. The Atlantic and Pacific reserve fleets, based respectively at the navy yards at Philadelphia and Puget Sound, were administered during the year in continuing development of the principle upon which they were inaugurated. All available ships not required for active service had been assembled in these two commands. Frequently short cruises had been made and satisfactory progress accomplished toward keeping all vessels in the highest condition of efficiency and material upkeep that their reduced complements would permit. Shortage of personnel rendered it necessary to place in ordinary in April and May, 1913, the six old battleships *Kearsarge*, *Kentucky*, *Iowa*, *Indiana*, *Oregon*, and *Massachusetts*, but they remain attached to the reserve fleets for purposes of care and preservation, although not required to be kept in readiness for use on short notice

SPECIAL SERVICE. During the year there were the usual number of vessels in active service in protecting American interests in the disturbed districts of Mexico, Central America, and the West Indies. In November, 1912, the *Tennessee* and *Montana* were ordered to the Mediterranean and formed a special service squadron for the protection of American interests on the coast of Asiatic Turkey, in case disturbances resulting from the Balkan War should have spread to that region. No occasion arose for any action for either of the ships, and they returned to the United States in May, 1913.

MEDITERRANEAN CRUISE. On October 25, 1913, nine battleships of the Atlantic fleet sailed from Hampton Roads for various ports in the Mediterranean for a visit of about three weeks. The cruise was arranged largely for the educational advantages to be derived by officers and enlisted men from an opportunity to visit foreign ports and travel in foreign countries. During the year work on the machinery for the battleship *New York* proceeded in a satisfactory manner at the New York navy yard, and its installation was in progress at the end of the fiscal year.

BUILDING PROGRAMME. The Secretary of the Navy in his annual report for 1913 recommends the authorization by Congress of a building programme which shall include 2 dreadnoughts, 8 destroyers, and 3 submarines. There were at the end of the year 6 battleships of the largest and most approved type under construction. These included the *Texas*, which is practically completed, the *New York*, which will be commissioned in the spring of 1914, the *Pennsylvania*, *Oklahoma*, *Nevada*, and a battleship known as *No. 39*. Completion of these vessels, together with the smaller ships under construction, will, in the opinion of the Secretary of the Navy, make the American navy one of strength and power fit to protect American shores and American interests. Of smaller craft there were under construction during the year 17 destroyers, 1 destroyer tender, 21 submarines, 2 submarine tenders, 2 fuel ships, 3 gunboats, 1 transport, and 1 supply ship.

The Secretary of the Navy recommended that armor, guns, and powder for the navy should be made under the auspices of the Navy Department in order that the department should be freed from excessive prices charged by private manufacturers of armor-plate, guns, gun-forgings, etc. He declared that the prices charged for these by private firms was much too high, and he recommended appropriations for the establishment of an armor-plate factory and an increase in the gun factory, powder factory, and the torpedo works. He also recommended the immediate consideration of the question of providing fuel oil for the navy at reasonable rates, and the passage of legislation that will enable the government to refine its own oil from its own oil wells, and thus relieve itself from the necessity of purchasing what seems fair to become the principal fuel of the navy in the future, at exorbitant and ever-increasing prices, from the private companies that now completely control the supply.

The secretary expresses himself heartily in favor of a suspension of naval construction on the part of the great powers, and recommends that the United States government take the initiative to bring about an international conference to decrease the cost of armies and navies.

NAVAL SCHOOLS. There was established on board the *Des Moines*, in 1913, a school for academic, vocational, and technical instruction of enlisted men. The experiment met with such success that it was proposed to install these schools generally upon the ships and at the shore stations of the navy. Already four training schools for recruits are in existence at Newport, Norfolk, Chicago, and San Francisco, and eleven technical schools are maintained by the government. These are the machinists' school at Charleston, S. C., the electricians' school at New York and Mare Island, the seaman gunners' school at Washington, the artificers' school at Norfolk, the musicians' schools at Norfolk and San Francisco, and the yeomen's schools at Newport and San Francisco. These schools are converting raw recruits into skilled men in the various trades required by the naval service. For the development of aviation as related to the navy, see the article AERONAUTICS.

The organized naval militia increased both in numbers and efficiency during 1913. Practical experience was gained by cruising in vessels loaned by the government.

ENLISTMENTS. As a result of the campaign of publicity undertaken by the naval officers, the number of enlistments for the five months ending October 31 was unprecedented. The enlistments in this period numbered 8448, compared with 6102 for a similar period in 1909, 6005 in 1910, 7170 in 1911, and 7190 in 1912. This increase in numbers has been coincident with the policy of raising the standard for admission. There has been a rigid exclusion of those not morally or physically fit, and in more than one instance men who enlisted to escape prosecution for crime were expelled from the ships, and notice given that the navy was the place only for young men of character and merit, and no others would be retained. The appropriations for the support of the navy for the fiscal year 1914 amounted to $140,736,536. Estimates for the fiscal year 1915 amount to $144,417,453.

POST OFFICE

The postal service for the fiscal year ending June 30, 1913, amounted to $266,619,525, an increase over the revenues of 1912 by more than 8 per cent. The amount of increase is to be attributed to the operation of the parcel post system, which was inaugurated on January 1, 1913. The expenses for the year amounted to $262,067,541, leaving an excess of revenues over expenses of $4,510,650. This, however, is not taken to be the actual surplus of receipts over expenditures, because it does not include obligations which were incurred but not paid during the year. The estimated actual surplus for the year 1913 was $3,841,906. This is the first actual postal surplus in thirty years.

PARCEL POST. The operation of the parcel post system begun on January 1, 1913, was in all respects successful. The capacity of the postal organization to conduct this important public utility was amply proved by its rapid development and effective service. The growth of the business of parcel post during the year was phenomenal. During the first six months of its operation, approximately 300,000,000 parcels were handled. The percentage of loss and damage was relatively small, as were the number of complaints of delay or unsatisfactory service. When the service was first inaugurated an issue of distinctive stamps was prescribed for the payment of postage on parcel post mail; these stamps were not accepted for postage on other than fourth-class matter, and the stamps used for other classes of mail were not accepted for postage on parcels. This restriction resulted in great confusion and annoyance to the public, and the mandatory use of this special issue was therefore discontinued. The use of ordinary stamps on parcel post packages was permitted and the use of parcel post stamps on other classes of mail was also allowed.

The parcel post law provided for the indemnification of shippers, for articles injured or lost, by insurance; and accordingly the registration privilege was withdrawn from fourth-class mail, and the insurance privilege substituted. Six months' experience demonstrated that the uniform charge for insurance regardless of the amount of the risk worked against the usefulness of the system, and accordingly on July 1, the regulation was amended so that a mailable parcel on which the postage is fully prepaid may be insured against loss in an amount equivalent to its value, but not exceeding $25, on a payment of a fee of five cents; and in an amount equivalent to its actual value in excess of $25, but not to exceed $50, on a payment of a fee of ten cents. During the six months' operation of the system at the close of the fiscal year more than 25,000,000 parcels were insured against loss.

In view of the increase of postal revenues due to the operation of the parcel post system, it was determined shortly after the close of the fiscal year to give to the people the benefit of this earning power in the form of reduced rates, and on August 15 the rates for the first and second zones were reduced and the weight limit increased from 11 to 20 pounds. The increase in the weight limit met with such successful results that the Post Office Department submitted to the Interstate Commerce Commission a recommendation for increasing the weight limit in the first and second zones from 20 to 50 pounds, and in the remaining zones from 11 to 20 pounds, and for substantially reducing the rates of postage in all zones except the first and second, which had already been revised, and the seventh and eighth, in which any reduction was held to be not justified at the present time. The recommendation was approved by the commission, to go into effect on January 1, 1914.

The increased burden forced upon the railroads as a result of these increases in weight limit, made it necessary to consider the matter of increased compensation for this extra service, and during the latter part of the year the Post Office Department was engaged in gathering statistical data necessary for ascertaining a correct basis for fixing a just, fair, and adequate compensation for the service rendered.

POSTAL TELEGRAPHS AND TELEPHONES. The Postmaster-General in his annual report for 1913 expressed conviction that the Post Office Department should have control over all means of communication of intelligence, including telegraphs and telephones. He declared that the successful operation of the parcel post had demonstrated the capacity of the government to conduct the public utilities which fall properly within the postal provision of the Constitution. Beginning in June, 1913, an investigation was begun to determine the desirability and practicability of extending the ownership and control of means of communication, with a view to the acquisition by the government of the telegraph and telephone facilities, to be operated as an adjunct to the postal service.

AERIAL MAIL SERVICE. Experimental aerial mail service was first authorized in 1911, and since that date permission has been given for carrying mail by this method in fifty-four instances. An item was included in the estimates for 1915 for $50,000 to provide for an experimental service. It is believed that there are sections of the country where, because of topographical conditions, this class of service might be advantageously employed in some cases.

POSTAL SAVINGS SYSTEM. From the time of its inauguration as a branch of the postal service until May 1, 1913, the postal savings system was conducted as an independent office under the immediate supervision of the Postmaster-General. On the latter date the business of the system was transferred to the bureau of the Third Assistant Postmaster-General, and the business methods were reorganized. On June 30, 1913, the postal savings system was in operation at 12,158 offices, of which 8227 were of presidential grade and 3931 of the fourth class. Savings facilities were also extended to 662 branches and stations, making a total of 12,820 depositories in operation on that date. From June 30 to the end of the year the service was extended to 210 additional presidential offices. The number of savings depositors on June 30, 1913, was 331,006, and the amount of deposit to their credit was $33,818,870. Postal savings bonds to the value of $3,506,000 had been issued to depositors. Banks to the number of 6226 were qualified to receive postal savings funds. These included 3786 national banks, 2405 State banks, 337 savings banks, 609 trust companies, and 49 organized private banks subject to State supervision.

Second-class Matter. The mailings of newspapers and periodicals as second-class matter at the cent-a-pound rate and free in the county of publication, during the fiscal year 1912, were greater than any previous year, and for the first time in the history of the postal service exceeded a billion pounds. Although second-class matter constituted approximately 62 per cent. of the aggregate weight of the domestic revenue-producing mail, it produced only 4.98 per cent. of the postage derived from such mail. A joint committee of Congress was engaged in examining into the question of second-class rates, and with the understanding that it would report not later than March 4, 1914, as provided by law.

Appointment of Postmasters. Early in President Wilson's administration announcement was made that all presidential postmasters appointed by the preceding administration would be permitted to serve out their terms, and that no removals except for improper conduct or incapacity would be made. This policy was scrupulously adhered to during the year. Announcement was made at the same time that the department would require every postmaster to give to the office his individual attention for eight hours daily, and this requirement was rigidly enforced during the year. All fourth-class postmasterships, except those in Alaska, Guam, Hawaii, Porto Rico, and Samoa, are now classified civil-service positions, but the classified status accorded to the present incumbents by an executive order, issued on October 15, 1912, by President Taft, was withdrawn by the executive order of May 7, 1913, and these positions will be filled as the result of competitive examinations conducted by the civil service commission.

Recommendations for Legislation. The Postmaster-General in his annual report makes important recommendations for legislation affecting the postal service. These include proposals for the readjustment of postmasters' salaries, for compensatory time for Sunday service, for compensation to injured postal employes, and for the extension of the system of transporting periodicals in fast freight trains.

Pensions

The total number of pensioners of all kinds on the rolls on June 30, 1913, was 820,200, compared with 860,294 on the same date in 1912, or a net decrease of 40,094. The losses by death were 57,459, and the gains by original allowances and by restoration and renewal allowances were 19,758. At the beginning of the fiscal year there were 497,263 survivors of the Civil War on the roll, and at its close 462,379, a net decrease of 34,884. Losses by death among the Civil War survivors in 1913 were 36,064. Of the total number (820,200) of pensioners on the rolls at the close of the year, 503,633 were persons who rendered service in the army or navy of the United States. The remaining 316,567 were pensioned as widows and dependents. The number of individuals who served in the army and navy of the United States during the Civil War is estimated at 2,213,365. There were on June 30, 1912, 199 widows of the War of 1812, 1142 survivors; and 5123 widows of the war with Mexico, 1096 survivors; and 2330 widows of the Indian wars. The amount disbursed for pensions during the fiscal year was $174,171,660. The total amount paid to pensioners from 1790 to 1913 was $4,557,539,824. An act of May 11, 1912, granted pensions, according to the length of service, to persons who had served 90 days or more in the military or naval service of the United States who were honorably discharged and who had reached certain ages. It also granted pensions at the maximum rate of $30 per month, without regard to age or length of service, to persons who served in the military or naval service during the Civil War and who received honorable discharges, and who were wounded in battle or in line of duty and are now unfit for manual labor by reason thereof, or who from disease or other causes incurred in line of duty resulting in their disabilities are now unable to perform manual labor. From the date of the approval of this act to the close of the fiscal year June 30, 1913, 504,438 applications for pensions or for increase of pension had been received under it, and during that time 429,369 certificates were issued. Only 894 of these were original allowances, or pensions granted to persons never before on the roll under other laws.

Patents

There were received during the fiscal year ended June 30, 1913, 67,936 applications for mechanical patents, and there were granted 38,704 patents. The number of patents that expired was 21,427. These statistics show a slight decrease in the volume of business during the year. The Secretary of the Interior in his annual report points out the urgent and ever-growing need of a new building for the Patent Office. Plans for the accomplishment of this took definite form when an appropriation of $5000 was made by the Sixty-second Congress to be expended for the preparation of plans. A commission was appointed consisting of the Secretary of the Interior, the commissioner of patents, and the supervising architect of the Treasury, for the purpose of investigations as to available sites and other matters. On April 1, 1913, the convention of the International Union for the Protection of Industrial Property became effective. This convention, which was amendatory to the Paris convention of 1883, was signed at Washington on June 2, 1911. Ratifications have been made by the following governments: Germany, Austria, Dominican Republic, Spain, United States, France, Great Britain, Italy, Japan, Mexico, Norway, Netherlands, Portugal, Switzerland, and Tunis.

BUREAU OF MINES

A new organic act for this bureau was passed by Congress and approved February 25, 1913. This greatly extended the scope of the work of the bureau and made it more nearly commensurate with the importance of the mining and metallurgical industries of the country. Under this act the work of the bureau includes not only investigations and inquiries looking to the prevention of mine accidents, but also improvements in the general health and safety conditions, the practical conservation of resources through the prevention of waste, the increase of efficiency and economy, and improvements in the economic conditions relative to the mining, metallurgical, and miscellaneous mineral industries of the country.

Two chief features of the work of the bureau during 1913 relate to mine explosions and the prevention of unnecessary waste in the mining and metallurgical industries. Investigations into the causes and method of preventing mine explosions were carried on in the laboratories at Pittsburgh and in the experimental coal mine opened up ten miles south of that city. Six mine-rescue stations were maintained during the year and 8 mine-rescue cars were operated by the bureau. Over 6900 miners were trained in first-aid and mine-rescue work, and 32,000 miners attended first-aid and rescue demonstrations given by the employes of the bureau in connection with the work of these cars. The bureau also collected information about such mining laws relating to health and safety as are in force in different countries, besides a large amount of data concerning the accidents and health conditions in the metal-mining and metallurgical plants of this country.

During 1913 Congress authorized for the first time inquiries and investigations concerning the waste of resources in the mining and metallurgical operations of the country. The bureau under this authorization extended its inquiries to all the more important branches of the industry, and it proved that there were wastes in the mining and extraction of coal, oil, natural gas, copper, lead, zinc, and other mineral substances which constitute a serious, and in many cases a permanent and national, loss. The work of the bureau in saving human life has been of the utmost importance. During the year previous to the beginning of its investigations 30 per cent. of the coal-mine fatalities were caused by mine explosions. During 1913, chiefly as a result of the work of the bureau, the percentage was reduced to about 13. Before the bureau began its work the number of men killed per 10,000 was 48; during 1912 it was 32. The work of the bureau has thus far, by force of circumstances, been limited chiefly to investigations of explosions in coal mines. Investigations, however, will in future take also other and various directions.

DIPLOMATIC SERVICE

In no department of the administration of President Wilson during its first year was criticism so free and severe as in its relation to the diplomatic service. It was assumed that changes would be made in the list of diplomatic representatives in accordance with the custom observed in the change of administration, but the character of these changes in certain cases provoked criticism and comment even among those favorable to the administration. It was generally assumed without, however, any real basis of fact, that President Wilson had retained for himself the appointment of ambassadors, while to Mr. Bryan he had left the selection of ministers and the minor officers of legations.

The ambassadors at the beginning of President Wilson's administration were as follows: Richard C. Kerens, Austria-Hungary; Edwin V. Morgan, Brazil; Myron T. Herrick, France; John G. A. Leishman, Germany; Thomas J. O'Brien, Italy; Larz Anderson, Japan; Henry L. Wilson, Mexico; Curtis Guild (resigned in 1913), Russia; and W. W. Rockhill, Turkey. The office of ambassador to Great Britain was vacant on account of the death of Whitelaw Reid on December 5, 1912. The embassy to Mexico became vacant on the resignation of Henry L. Wilson, and relations with Mexico prevented the filling of the office.

One of President Wilson's first appointments was that of Walter H. Page, the editor of the *World's Work*, as ambassador to Great Britain. The appointment was generally considered to be an excellent one, although it met with some opposition in the Senate on account of certain writings of Mr. Page relating to the South. Thomas Nelson Page, the well-known novelist, was appointed ambassador to Italy. This appointment also was well received. James W. Gerard, whom Mr. Wilson appointed ambassador to Germany to succeed Mr. Leishman, was little known outside of New York City, where he had won reputation as an able jurist. Mr. Wilson appointed Frederic C. Penfield ambassador to Austria, to succeed Mr. Kerens. Mr. Penfield for many years was in the diplomatic service of the United States. He was vice-consul at London, and consul-general in Egypt under Mr. Cleveland. Henry Morgenthau, appointed ambassador to Turkey to succeed W. W. Rockhill, was treasurer of the Democratic national committee in the campaign of 1912. He had no previous diplomatic experience, and in this respect was in marked contrast to Mr. Rockhill, who, since 1884, had been constantly in the diplomatic service.

The appointment which caused the greatest amount of comment and criticism was that of Henry M. Pindell of Peoria, Ill., to be ambassador to Russia. Mr. Pindell is the editor of a newspaper, and previous to his appointment was nationally unknown. He was, however, for many years a warm friend and supporter of Mr. Bryan. Shortly after his appointment by President Wilson a letter reported to have been written to him by Senator Lewis was made public. In this letter Mr. Pindell was urged to take the post and was promised that his duties would be light, as it was proposed to undertake no important diplomatic negotiations with Russia during the year. He was also reminded of the advantages of the social position which Mr. Pindell would have as ambassador, and he was given the privilege of resigning, if he wished to do so, at the end of the year. It was claimed in the letter that this arrangement was made with the knowledge and consent of Mr. Bryan. Senator Lewis, on the publication of the letter, said that it was incorrect, and that he had written no such letter. He did not deny, however, that he had corresponded with Mr. Pindell on the subject. At the end of the year the Senate had not confirmed the nomination, and it was generally assumed that Mr. Pindell would resign after such confirmation had been received. Spain was raised to an embassy in 1913, and Joseph E. Willard was appointed as the first ambassador. Mr. Herrick continued to be ambassador to France during 1913. The position had been offered by President Wilson to W. F. McCombs, who managed his campaign in 1912, but Mr. McCombs had not accepted at the end of the year. George W. Guthrie of Pittsburgh was appointed ambassador to Japan. Mr. Guthrie had served as mayor of Pittsburgh, and had for many years been well known in politics in Pennsylvania.

In the appointment of ministers, especially to Central and South America, many remarkable changes were made, and it was in these that the most severe criticism was directed against Mr. Bryan for the reason that he was held largely responsible for such changes. Arthur Beaupré, who had been in the diplomatic service since 1897 and had served as minister to several South American countries, was succeeded as minister to Cuba by William E. Gonzales, a well-known editor and politician of South Carolina. Montgomery Schuyler, Jr., was succeeded as minister to Ecuador by Charles S. Hartman of Montana. Mr. Schuyler had served in legations at St. Petersburg (twice), Siam, Rumania, Japan, and Mexico. He is well known as a scholar and linguist. As minister to Costa Rica, Lewis Einstein was succeeded by Edward J. Hale of North Carolina. Mr. Einstein had served in the diplomatic service since 1903. Mr. Hale was editor of a newspaper in North Carolina, and at the time of his appointment was 74 years of age. William W. Russell, who was succeeded as minister to San Domingo by James M. Sullivan of New York, had been in the diplomatic service since 1895, chiefly in South American countries. Mr. Sullivan was, prior to his appointment, a New York lawyer. As minister to Haiti, Madison R. Smith, a lawyer and editor of Wisconsin, was appointed to succeed Henry W. Furniss, who had been in the diplomatic service since 1898. H. Percival Dodge, who had served in the embassies at Berlin, and Tokyo, and as minister to several South American countries, was superseded as minister to Panama by William Jennings Price, a lawyer of Danville, Ky. Horace G. Knowles, minister to Bolivia, who had been in the diplomatic service for many years, was succeeded by John D. O'Rear, a lawyer of Mexico, Mo. Thaddeus A. Thomson, a ranch-owner of Austin, Texas, was appointed minister to Colombia to succeed James T. DuBois. The latter had been in the diplomatic consular service for many years. George T. Weitzel was succeeded as minister to Nicaragua by Benjamin L. Jefferson, a physician of Colorado, hitherto unknown in politics. Mr. Weitzel had been in the diplomatic service since 1907. Charles D. White, who was succeeded as minister to Honduras by John Ewing of New Orleans, had served in the diplomatic service since 1904 and had held important positions. As minister to Peru, Benton McMillin, a prominent politician of Tennessee, was appointed to succeed Henry C. Howard. Robert S. R. Hitt, who was succeeded as minister to Guatemala by Rev. William H. Leavell, Mississippi, had served in various embassies as minister since 1901.

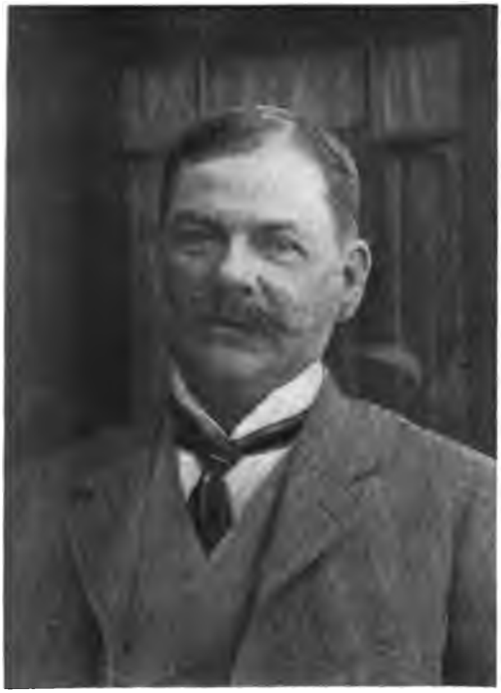
Almost without exception the previous ministers to the South American and Central American countries had held these offices for many years and were conversant with the difficult politics of the Latin American countries and familiar with the Spanish language. Ministers to European countries, it was generally conceded, were better types of diplomats than those appointed to Central and South American countries. The appointment of Dr. Henry Van Dyke as minister to Holland was generally praised, as was also the appointment of Pleasant A. Stovall, minister to Switzerland, to succeed Henry S. Boutell. The appointment of another writer was that of Brand Whitlock, former mayor of Toledo, Ohio, as minister to Belgium. George Fred Williams, for many years well known in politics, was appointed minister to Greece to succeed President Schurman of Cornell University. These are the more important appointments of ministers to European countries.

A complete list of the ambassadors, and ministers of the United States to foreign countries and of foreign countries to the United States is given in the table below.

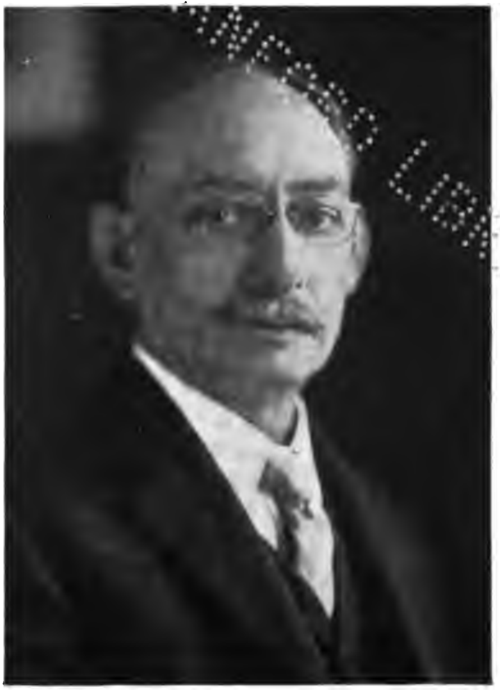
Among the representatives of foreign countries to the United States there were few important changes during the year. The most notable was the retirement of James Bryce, ambassador from Great Britian and the appointment of Sir Cecil Arthur Spring-Rice as his successor. There were no other changes among the ambassadors. Spain was raised to an embassy during the year, making a total of 11 ambassadors from foreign countries to the United States. The new ministers were Dr. Pablo Desvernine from Cuba; Constantin Brun, Denmark; Dr. Don Francisco J. Peynado, Dominican Republic; Dr. Gonzalo S. Córdova, Ecuador; Ulrich Duvivier, Haiti; W. L. F. C. Van Rappard, Netherlands; Emiliano Chamorro, Nicaragua; Don Eusebius A. Morales, Panama; Hector Velazquez, Paraguay; Don Francisco Duenas, Salvador; and Phya Prabha Karavongse from Siam.

AMBASSADORS

Country	Accredited by United States		Accredited to United States	
Austria-Hungary	Frederic C, Penfield, Pa.	1913	Konstantin Theodor Dumba	1912
Brazil	Edwin V. Morgan, N. Y.	1913	Domicio da Gama	1911
France	Myron T. Herrick, O.	1912	J. J. Jusserand	1903
Germany	James W. Gerard, N. Y.	1913	Johann Heinrich, Count von Bernstorff	1908
Great Britain	Walter Hines Page, N. Y.	1913	Sir Cecil Arthur Spring-Rice	1913
Italy	Thomas Nelson Page, Va.	1913	Marchese Cusani-Confalonieri	1910
Japan	George W. Guthrie, Pa.	1913	Viscount Sutemi Chinda	1912
Mexico	....	....	Don Manuel Calero	1912



THOMAS NELSON PAGE
Ambassador to Italy



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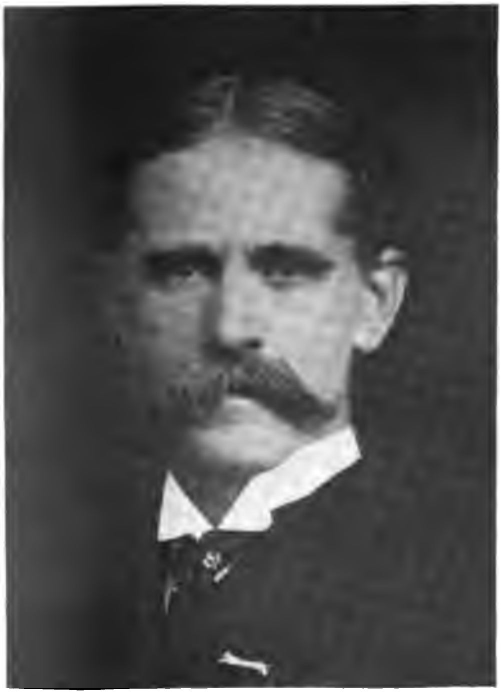
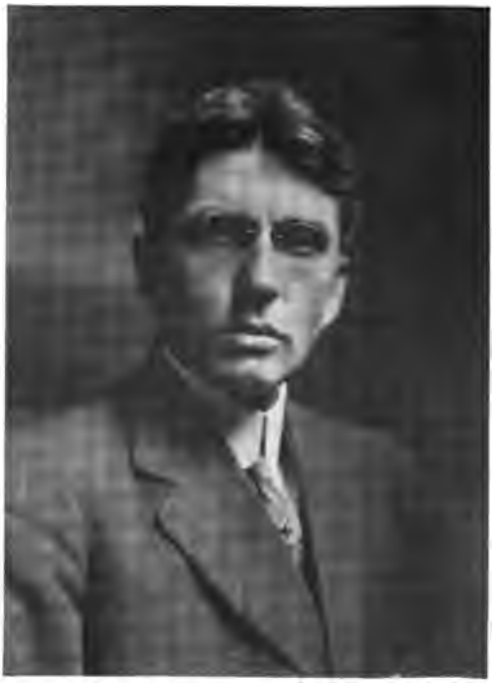
WALTER HINES PAGE
Ambassador to Great Britain



HENRY VAN DYKE
Minister to the Netherlands



BRAND WHITLOCK
Minister to Belgium

FOUR DISTINGUISHED AUTHORS IN THE UNITED STATES DIPLOMATIC SERVICE

AMBASSADORS—(*Continued*)

Country	Accredited by United States		Accredited to United States	
Russia			George Bakhméteff	1911
Spain	Joseph E. Willard, Va.	1913	Don Juan Riano y Gayangos	1913
Turkey	Henry Morgenthau, N. Y.	1913	Youssouf Zia Pasha	1910

MINISTERS PLENIPOTENTIARY

Argentine Republic	J. W. Garrett, Md.	1912	Rómulo S. Náon	1911
Belgium	Brand Whitlock, O.	1913	E. Havenith	1911
Bolivia	John D. O'Rear, Mo.	1913	Ignacio Calderón	1904
Chile	Henry P. Fletcher, Pa.	1909	Eduardo Suárez	1911
China	Paul S. Reinsch, Wis.	1913	Chang Yin Tang	1909
Colombia	Thaddeus Austin Thompson, Tex.	1913	Don Julio Betancourt	1912
Costa Rica	Edward J. Hale, N. C.	1913	Joaquin Bernardo Calvo	1899
Cuba	William E. Gonzales, S. C.	1913	Dr. Pablo Desvernine	1913
Denmark	Maurice F. Egan, D. C.	1907	Constantin Brun	1913
Dominican Republic	James M. Sullivan, N. Y.	1913	Dr. Don Francisco J. Peynado	1913
Ecuador	Charles S. Hartman, Mont.	1913	Dr. Don Gonzalo S. Córdova	1913
Greece *	George Fred Williams, Mass.	1913	L. A. Coromilas	1909
Guatemala	William H. Leavell, Miss.	1913	Joaquin Antonio Mendez	1912
Haiti	Madison R. Smith, Wis.	1913	Ulrich Duvivier	1913
Honduras	John Ewing, La.	1913	Dr. Alberto Membreno	1912
Netherlands †	Henry Van Dyke, N. J.	1913	W. L. F. C. Van Rappard	1913
Nicaragua	Benjamin L. Jefferson, Col.	1913	Emiliano Chamorro	1913
Norway	Albert G. Schmedemann, Wis.	1913	H. H. Bryn	1910
Panama	William J. Price, Ky.	1913	Don Eusebius A. Morales	1913
Paraguay	Daniel J. Mooney, N. Y.	1909	Hector Velazquez	1913
Persia	Charles W. Russell, D. C.	1909	Mirza Ali Kuli Khan	1910
Peru	Benton McMillin, Tenn.	1913	Federico A. Pezet	1912
Portugal	Thomas H. Birch, N. J.	1913	Viscount de Alte	1902
Rumania ‡	Charles J. Vopicka, Ill.	1913	....	....
Salvador	William Heimke, Kan.	1909	Don Francisco Duenas	1913
Siam	....	....	Phya Prabha Karavongse	1913
Sweden	Charles H. Graves, Minn.	1905	W. A. F. Ekengren	1912
Switzerland	Pleasant A. Stovall, Ga.	1913	Paul Ritter	1909
Uruguay	Nicolay A. Grevstad, Ill.	1911	Carlos María de Pena	1911
Venezuela	Preston McGoodwin, Okla.	1913	P. Ezequiel Rojas	1909

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* Accredited also to Montenegro. † Accredited also to Luxemburg. ‡ Accredited also to Servia and Bulgaria. § Chargé d'affaires.

FEDERAL JUDICIARY

There were no changes in the membership of the United States Supreme Court during 1913. The judges of the court and the year of the appointment of each are given below. The other courts which make up the Federal judiciary and their membership in 1913 are also given.

SUPREME COURT. Chief Justice: Edward Douglass White of Louisiana (1910). Associate Justices: Joseph McKenna, California (1898); Oliver Wendell Holmes, Massachusetts (1902); William R. Day, Ohio (1903); Horace Harmon Lurton, Tennessee (1909); Charles Evans Hughes, New York (1910); Willis Van Devanter, Wyoming (1910); Joseph R. Lamar, Georgia (1910); Mahlon Pitney, New Jersey (1912).

COURT OF CLAIMS. Chief Justice: Edward Kernan Campbell; Associate Judges: Charles Bowen Howry, Fenton Whitlock Booth, Samuel Stebbins Barney, George Wesley Atkinson.

COURT OF CUSTOMS APPEALS. Presiding Judge: Robert M. Montgomery. Associate Judges: James F. Smith, Orion M. Barber, Marion De Vries, George E. Martin.

COMMERCE COURT. This court ceased to exist on December 31,1913, by act of Congress approved October 22, 1913. The justices of the Commerce Court at the time of its abolishment follow. Presiding Judge: Martin A. Knapp. Associate Judges: William H. Hunt, John E. Carland, and Julian W. Mack. Robert W. Archbald, a judge of this court, was removed by impeachment January 19, 1913. These judges, with the exception of Judge Archbald, continued as members of the Circuit Courts.

CIRCUIT COURTS. The Circuit Courts comprise nine judicial circuits, and each of the justices of the Supreme Court is in charge of one of these circuits. There are in addition other circuit judges for each of the circuits.

SUPREME COURT DECISIONS. The United States Supreme Court handed down many important decisions during 1913. The most interesting of these from a public point of view related to the railroad laws and matters connected with the anti-trust law. For a discussion of these see RAILWAYS and TRUSTS. On April 7 it was decided that corporations leasing land are exempt from the federal corporation tax. On May 12, in a decision handed down, the court upheld the right of the government to deport undesirable alien women regardless of the three-year limitation. The court on April 21 decided that federal appellate courts may no longer correct verdicts of juries when they believe insufficient evidence has been introduced to support them. The newspaper publicity law was upheld on June 9, and on the same day the right of the State of Minnesota to fix railroad rates was upheld. (See RAILWAYS.) The foreign corporation tax law was sustained as constitutional on November 3. During the year two bills providing for an increase in the membership of the court were introduced in Congress, but no action was taken on them.

DISTRICT OF COLUMBIA

Under the article entitled as above, will be found information concerning certain legislation of the year pertaining to the District of Columbia.

INAUGURATION OF PRESIDENT WILSON

President Wilson and Vice-President Marshall were inaugurated on March 4, 1913. The weather conditions were in great contrast to those prevailing at the time of President Taft's inauguration, when a great storm made the streets almost impassable. It is estimated that over half a million people were gathered in Washington to witness the inauguration ceremonies. The inaugural parade included some 30,000 men and is said to have been the longest parade since President Lincoln, in 1865, reviewed the returning Union troops. Notable in the parade were the representatives from Princeton University and a group of Indian chiefs from the Indian reservations.

As is the custom, the Senate chamber was the scene of the inauguration of the Vice-President, which precedes that of the President. Members of the other House of Congress and the ministers of foreign countries and of the Supreme Court filled the Senate chamber. The oath of office was administered by Senator Gallinger, president *pro tempore* of the Senate, and immediately the Sixty-second Congress adjourned and the Sixty-third Congress assembled.

As president of the Senate Mr. Marshall made a somewhat unusual address. It was earnest and original, but in some of its expressions was unconventional.

For the inauguration of President Wilson a grandstand holding 10,000 persons had been built at the east wing of the Capitol. This was stretched from wing to wing of the great building. To this stand proceeded President Taft, President-elect Wilson, members of the two houses of Congress, and officials and distinguished guests. Before the stand was assembled the largest multitude that had ever witnessed an inaugural ceremony. President Taft and Mr. Wilson were greeted with prolonged applause and the demonstration given to W. J. Bryan was notably warm. The oath of office was administered to Mr. Wilson by Chief Justice White. President Wilson's inaugural address followed. Its brevity permits of its inclusion here.

"There has been a change of government. It began two years ago, when the House of Representatives became Democratic by a decisive majority. It has now been completed. The Senate about to assemble will also be Democratic. The offices of President and Vice-President have been put into the hands of Democrats. What is the question that is uppermost in our minds today? That is the question I am going to try to answer, in order, if I may, to interpret the occasion.

"It means much more than the mere success of a party. The success of a party means little except when the Nation is using that party for a large and definite purpose. No one can mistake the purpose for which the Nation now seeks to use the Democratic party. It seeks to use it to interpret a change in its own plans and point of view. Some old things with which we had grown familiar and which had begun to creep into the very habit of our thought and of our lives have altered their aspect as we have latterly looked critically upon them with fresh, awakened eyes; have dropped their disguises and shown themselves alien and sinister. Some new things, as we look frankly upon them, willing to comprehend their real character, have come to assume the aspect of things long believed in and familiar, stuff of our own convictions. We have been refreshed by a new insight into our own life.

"We see that in many ways that life is very great. It is incomparably great in its material aspects, in its body of wealth, in the diversity and sweep of its energy, in the industries which have been conceived and built up by the genius of individual men and the limitless enterprise of groups of men. It is great also, very great, in its moral force. Nowhere else in the world have noble men and women exhibited in more striking forms the beauty and the energy of sympathy and helpfulness and counsel in their efforts to rectify wrong, alleviate suffering, and set the weak in the way of strength and hope. We have built up, moreover, a great system of government, which has stood through a long age as in many respects a model for those who seek to set liberty upon foundations that will endure against fortuitous change, against storm and accident. Our life contains every great thing and contains it in rich abundance.

"But the evil has come with the good, and much fine gold has been corroded. With riches has come inexcusable waste. We have squandered a great part of what we might have used and have not stopped to conserve the exceeding bounty of nature, without which our genius for enterprise would have been worthless and impotent, scorning to be careful, shamefully prodigal as well as admirably efficient. We have been proud of our industrial achievements, but we have not hitherto stopped thoughtfully enough to count the human cost, the cost of lives snuffed out, of energies overtaxed and broken, the fearful physical and spiritual cost to the men and women and children upon whom the dead weight and burden of it all has fallen pitilessly the years through. The groans and agony of it all had not yet reached our ears, the solemn moving undertone of our life, coming up out of the mines and factories and out of every home where the struggle had its intimate and familiar seat. With the great government went many deep secret things which we too long delayed to look into and scrutinize with candid, fearless eyes. The great government we loved has too often been made use of for private and selfish purposes, and those who used it had forgotten the people.

"At last a vision has been vouchsafed us of our life as a whole. We see the bad with the good, the debased and decadent with the sound and vital. With this vision we approach new affairs. Our duty is to cleanse, to reconsider, to restore, to correct the evil without impairing the good, to purify and humanize every process of our common life without weakening or sentimentalizing it. There has been something crude and heartless and unfeeling in our haste to succeed and be great. Our thought has been 'Let every man look out for himself, let every generation look out for itself,' while we reared giant machinery which made it impossible that any but those who stood at the levers of control should have a chance to look out for themselves. We had not forgotten our morals. We remembered well enough that we had set up a policy which was meant to serve the humblest as well as the most powerful, with an eye single to the standards of justice and fair play, and remembered it with pride. But we were very heedless and in a hurry to be great.

"We have come now to the sober second thought. The scales of heedlessness have fallen from our eyes. We have made up our minds to square every process of our national life again with the standards we so proudly set up at the beginning and have always carried in our hearts. Our work is a work of restoration.

"We have itemized with some degree of particularity the things that ought to be altered, and here are some of the chief items: A tariff which cuts us off from our proper part in the commerce of the world, violates the just principles of taxation, and makes the government a facile instrument in the hands of private interests; a banking and currency system based upon the necessity of the government to sell its bonds fifty years ago, and perfectly adapted to concentration of cash and restricting of credits; an industrial system which, take it on all its sides, financial as well as administrative, holds capital in leading-strings, restricts liberties, and limits the opportunities of labor, and exploits without renewing or conserving the natural resources of the country; a body of agricultural activities not yet given the efficiency of great business undertakings or served as it should be through the instrumentality of science taken directly to the farm or afforded the facilities of credit best suited to its practical needs; water-courses undeveloped, waste places unreclaimed, forests untended, fast disappearing without plan or prospect of renewal, unregarded waste heaps at every mine. We have studied, as perhaps no other nation has, the most effective means of production; but we have not studied cost or economy as we should, either as organizers of industry, as statesmen, or as individuals.

"Nor have we studied and perfected the means by which government may be put at the service of humanity in safeguarding the health of the Nation, the health of its men and its women and its children, as well as their rights in the struggle for existence. This is no sentimental duty. The firm basis of government is justice, not pity. These are matters of justice. There can be no equality of opportunity, the first essential of justice in the body politic, if men and women and children be not shielded in their lives, their very vitality, from the consequences of great industrial and social processes which they cannot alter, control, or singly cope with. Society must see to it that it does not itself crush or weaken or damage its own constituent parts. The first duty of law is to keep sound the society it serves. Sanitary laws, pure food laws, and laws determining conditions of labor which individuals are powerless to determine for themselves are intimate parts of the very business of justice and legal efficiency.

"These are some of the things we ought to do, and not leave the others undone, the old-fashioned, never-to-be-neglected, fundamental safeguarding of property and of individual right. This is the high enterprise of the new day: to lift everything that concerns our life as a nation to the light that shines from the hearth-fire of every man's conscience and vision of the right. It is inconceivable that we should do this as partisans; it is inconceivable we should do it in ignorance of the facts as they are or in blind haste. We shall restore, not destroy; we shall deal with our economic system as it is and as it may be modified, not as it might be if we had a clean sheet of paper to write upon; and step by step we shall make it what it should be, in the spirit of those who question their own wisdom and seek counsel and knowledge, not shallow self-satisfaction or the excitement of excursions whither they cannot tell. Justice, and only justice, shall always be our motto.

"And yet it will be no cool process of mere science. The Nation has been deeply stirred, stirred by a solemn passion, stirred by the knowledge of wrong, of ideals lost, of government too often debauched and made an instrument of evil. The feelings with which we face this new age of right and opportunity sweep across our heart-strings like some air out of God's own presence, where justice and mercy are reconciled and the judge and the brother are one. We know our task is to be no mere task of politics, but a task which shall search us through and through, whether we shall be able to understand our time and the need of our people, whether we be indeed their spokesmen and interpreters, whether we have the pure heart to comprehend and the rectified will to choose our high cost of action.

"This is not a day of triumph; it is a day of dedication. Here muster, not the forces of party, but the forces of humanity. Men's hearts wait upon us; men's lives hang in the balance; men's hopes call upon us to say what we will do. Who shall live up to the great trust? Who dares fail to try? I summon all honest men, all patriotic, all forward-looking men, to my side. God helping me, I will not fail them, if they will but counsel and sustain me!"

PRESIDENT WILSON'S CABINET

The biographies of the members of President Wilson's cabinet will be found in their alphabetical order in this volume. In order to present the members as a whole they are, with the indications of the sections of the country from which they were chosen, given below.

William J. Bryan, Secretary of State, of Nebraska. His career is so familiar as to render an account of it unnecessary here.

William G. McAdoo, Secretary of the Treasury, was born in Georgia. He is a lawyer by profession, but is best known as the successful builder and operator of the Hudson tunnels and railways which connect New York City with New Jersey under the Hudson River.

The Secretary of War, Lindley M. Garrison, is also a lawyer, a native of New Jersey, where he had been a vice-chancellor since 1904.

The Secretary of the Navy, Josephus Daniels, is a native of North Carolina. He is a member of the bar, but never practiced his profession, having devoted himself chiefly to journalism and politics.

Franklin K. Lane, the Secretary of the Interior, was born on Prince Edward Island, Canada, but has been for many years a resident of California. His first work was on newspapers. He then studied law and was admitted to the bar. He held several offices in California and became widely known to the public as a member of the Interstate Commerce Commission in 1905. He became chairman of the commission in the autumn of 1912.

Albert Sidney Burleson, Postmaster-General, is a native of Texas. For many years he was a member of the House of Representatives and obtained a high reputation in that body for efficient and painstaking work.

David Franklin Houston, Secretary of Agriculture, was born in North Carolina, but for many years has been a resident of Missouri. He was widely known as an educator, and was at one time president of the Texas College of Agriculture.

James C. McReynolds, the Attorney-General, was born in Kentucky. He was an assistant attorney-general under Mr. Wickersham, in President Taft's cabinet.

William C. Redfield, the Secretary of Commerce, was born in New York State and is a manufacturer in Brooklyn. He has written and spoken much in favor of industrial peace and the treatment of laboring men and women on the human basis. He was a member of the House of Representatives and made a high reputation for efficiency in that body.

William B. Wilson, the first incumbent of the new Department of Labor, was born in Scotland. When he came to the United States he settled in Pennsylvania and became a coal miner. He has occupied high offices in the coal miners' unions and served in Congress. He was defeated for reëlection in the autumn of 1912.

It will be noted from this list that five of the members of this cabinet are to be credited to the South. These are: Secretary of the Treasury; Attorney-General; Postmaster-General; Secretary of the Navy; and Secretary of Agriculture. Of the Middle West Mr. Bryan is the only representative and of the Far West the only representative is the Secretary of the Interior. The Middle States are represented by the Secretary of Commerce, Secretary of War, and Secretary of Labor. For the first time in many years the New England States are without a representative in the cabinet.

DEPARTMENT OFFICERS

As the offices in the various departments of the government were, to a large extent, reorganized in 1913, it may be convenient for reference to include the names of the heads of the various bureaus and divisions in the administrative departments. These are given at the end of this article.

REPRESENTATION IN CONGRESS

At the end of this article will be found a list of the senators and representatives from the different States in the Sixty-third Congress.

ADMINISTRATION

No attempt will be made in this place to give a comprehensive survey of the principal events in the administration of President Wilson during 1913. These are fully treated elsewhere in this book—in other portions of the article UNITED STATES, in general articles covering the chief results of President Wilson's administrative policies, such as TARIFF, FINANCIAL REVIEW, MEXICO, and others. An account of the President's relation with Congress will be found in the section *Congress*, in this article. A history of the foreign relations of the United States under his direction will be found in the section *Foreign Relations*. The composition of the cabinet which he selected is described in the section *Cabinet*. His administration of the diplomatic service under the supervision of Secretary Bryan, will be found noted in detail in the section *Diplomatic Service*.

The last months of the administration of President Taft were not marked by any incidents of special interest. Mr. Taft made several speeches and addresses, in most of which he defended his administration and in some cases made caustic criticism of the Progressive party. (See POLITICAL PARTIES IN 1913.) President Taft signed, however, several important measures passed at the last session of the Sixty-second Congress. These included a resolution for the Lincoln memorial; the Nicaraguan Canal treaty; the physical valuation of railroads bill; and the bill for creating a new department, that of labor. He vetoed the immigration bill. (See IMMIGRATION.) In February he sent two messages to Congress, one of which dealt with the atrocities in Peru, the other urging a budget plan. This was sent on February 26. He also vetoed the Webb liquor bill on constitutional grounds. This, however, was passed over his veto. The sundry civil bill, which contained a provision preventing the expenditure of money for the prosecution of labor unions, was vetoed by him on March 4.

On January 13 the presidential electors met in the capitals of their respective States and formally cast their ballots for President and Vice-President. The votes of the eight Republican electors of Utah and Vermont were cast for Nicholas Murray Butler for Vice-President, in place of James S. Sherman, deceased.

President Wilson remained governor of New Jersey until March 1, but during the two months preceding his inauguration he made several important addresses. Two of these were delivered in the early part of January. The first of these was before the Commercial Club at Chicago, on January 11, and the second before the New Jersey electors two days later. On December 28, 1912, he had made an address at Staunton, Va., on the occasion of the celebration of his birthday in that city. These three speeches bore close relation to one another, and were considered to have formed a statement of the President-elect's attitude toward the great question of business and commerce with which the government must deal during his administration. The speech at Staunton was in general a statement of the principle that one is entitled to reward only as one renders service, and the application of that principle to the relations between business and government at the present time. The speech in Chicago was in fact a statement of the principle that the very existence of business depends upon confidence, and the principle was applied in a practical way as an exhortation to business men to deserve and win the confidence of the people. The speech before the New Jersey electors was a statement of the principle that those who are called upon to serve the people must go in the direction in which the people are going, and that therefore as a representative of the people he was committed to the cause of progress, and that as President he would "pick out progressives and only progressives."

On January 26 he addressed the social welfare advocates on Land Labor, and his last public address delivered before his inauguration as President was made at the inauguration of

James F. Fielder as his successor as governor of New Jersey.

During this interval Mr. Wilson refused to give out the names of those whom he had selected for members of his cabinet. He declared that these names would be announced on the day following his inauguration.

Events of the Administration. One of the first official acts of President Wilson was to issue a statement in regard to the attitude of his administration toward Central America. He promised the support of the United States to legitimate governments supported by the people, and strongly condemned intriguers and revolutionists. (See *Foreign Relations.*) Several days later the Department of State issued a statement in which it was announced that the United States would not be a party to the six-power banking group which had undertaken to finance railroad operations in China. (See *Foreign Relations.*) As a result of this action, Huntington Wilson, Assistant Secretary of State, who retained the position he held in President Taft's administration, resigned the office, and at the same time made public a severe criticism of President Wilson's attitude toward China. The greater portion of the time during these first months was devoted to preparations for the introduction of the Tariff bill in Congress, and to making appointments for the diplomatic service and other governmental offices. Much of the President's attention was also given to the difficulties with the legislature of California over the passage of a land-ownership bill. (See California.) In the latter part of April he began to assist in drafting a currency bill. On August 17 he dismissed Professor Willis Luther Moore as chief of the Weather Bureau. Irregularities in the conduct of his office were charged against him. His participation in the political affairs of New Jersey in May is discussed in the article New Jersey. On April 15 he intimated to Ambassador Bryce that settlement of the Panama toll question would be favorable to Great Britain. Several days later he declared that he would not reorganize the Canal Zone administration until after the completion of the canal. On January 23 he signed the sundry civil bill referred to above. (See Civil Service.) President Wilson spent such time as he could spare from Washington at Cornish, N. H. He made several addresses in the autumn, including one at the dedication of the restored Congress Hall at Philadelphia, on October 25. He also made an important address in Mobile before the Commercial Congress on October 27. This address was devoted to the relations of the United States to Latin America. He declared that morality and not expediency should be the nation's guide in its foreign relations. On October 9 he sent a message of congratulation to Yuan Shih-kai on his election as president of China. By the pressure of an electric button at Washington he exploded the Gamboa dike in the Panama Canal on October 10. (See Panama Canal.) On December 2 he delivered his message at the first regular session of the Sixty-third Congress. (See Congress.) His failure to endorse the woman suffrage movement in his message was criticised by suffragist advocates. (See Woman Suffrage.) Of the administration of President Wilson during his first ten months it may be said that in its accomplishments it was one of the most remarkable in the history of the country. In the face of opposition which was none the less real because it was not publicly avowed, he put through Congress two of the most important measures ever enacted—the tariff bill and the currency bill. He did this almost entirely by the force of his personality.

The only criticisms of importance brought against the conduct of his administration related to his Mexican policy and certain appointments in the diplomatic service. For a discussion of the latter, see section *Diplomatic Service;* and for a discussion of the policy of the United States toward Mexico, see Mexico.

Congress

The sessions of Congress treated in this section include the third session of the Sixty-second Congress, and the special and first regular sessions of the Sixty-third. In order to make a consecutive narrative, a résumé is first given of the proceedings of the third session of the Sixty-second Congress, from December 3, 1912, when it first convened, to the holiday adjournment in 1912. President Taft, according to his custom, sent his regular message to Congress in installments. The first installment was sent on December 3 and dealt chiefly with foreign relations of the United States. He discussed his policy in connection with the diplomatic and consular offices, and the detailed reorganization of the State Department which had taken place under his direction. On December 6 he sent the second message, which was more in the nature of a general message than the first. His principal recommendations were for a plan of currency reform such as was outlined by the monetary commission; an amendment to the law to lessen the penalty when corporations inadvertently disobey the corporation tax law; congressional approval of the plan of army reorganization prepared by the war college; the passage of a military bill increasing compensation to militia in the field; citizenship without statehood for Porto Ricans; regulation of water-power grants so that navigable streams may be improved by water-power companies; elevation of Colonel G. W. Goethals to a generalship; a return to the policy of two battleships a year by the appropriation for three battleships in 1913; and authority to the United States Supreme Court to make rules of procedure in common law cases in federal courts to expedite and lessen the cost of litigation. The President emphatically disapproved the project for the immediate independence of the Philippines. On December 19 he sent a third message which was, in effect, a defense against the charge that he had been instigated by political motives in placing 36,000 fourth-class postmasters under the operation of civil service law. (See Civil Service.) In the same message he advocated legislation permitting members of the cabinet to sit in Congress with the right of debate, but without votes. He also urged the adoption of a plan of the Postmaster-General for the readjustment of the compensation allowed railroads for carrying the mails, and he recommended the revision of the land laws to secure and regulate conservation and legislation affecting Alaska and a registry of mineral lands. He pointed out the necessity of further pure-food legislation, and requested Congress to make provision for a government building at the San Francisco-Panama-Pacific International Exposition. The Senate was occupied during the greater part of the time preceding the Christmas vacation with the impeachment proceedings against Judge Archbald. In the House the committee on ways and means provided for hearing on the tariff provision to begin January 6, 1913. By a vote of 153 to 118 the House declared that Charles C. Bowman, representative of the Eleventh Pennsylvania district, was not entitled to be seated, and by vote of 181 to 118 it declined to seat his Democratic opponent, George R. McLean. Both seats were rejected on the ground of corrupt practices. Before the adjournment for the holidays the House passed by vote of 178 to 52 the Burnett bill for the regulation of immigration (see IMMIGRATION).

On the convening of Congress after the Christmas holidays the impeachment proceedings against Judge Archbald were continued, and on January 13 the vote was taken. There were 13 charges in the indictment, and when the Senate came to ballot after the hearing of the evidence, there was a vote for actual conviction on only five counts. On the first count, which declared that on or about March 31, 1911, Judge Archbald had entered into a partnership agreement with Edward J. Williams of Scranton, Pa., for the purchase of a culm dump in Lackawanna County, for the purpose of disposing of this property at a pecuniary profit to themselves, and that Judge Archbald had used his official position as a judge of the Commerce Court to induce the owners of this property to sell it at much less than its actual value, the vote was the strongest, namely, 68 for conviction and 5 for acquittal. There were eight counts on which acquittal was voted. The other articles on which conviction was obtained embodied charges similar to the first. The final count was in the nature of a summing up of the whole case in that it stated that Judge Archbald had sought to obtain credit from and through persons interested in the suits at his court; that he had carried on a general business in culm dumps for speculation and profit while he was a judge, and had unlawfully influenced railroad officials. In the vote applying to the penalty of removal from office, the Senate was unanimous, but in declaring him disqualified forever for any office of honor, trust, or profit, it was more evenly divided (39-35). The general opinion of the Senate was well expressed by Senator Root's explanation of his vote. "I have voted that the respondent is guilty under articles 1, 2, 3, 5, 6, and 13, because I find that he used power and influence in his vote as judge of the Court of Commerce to secure favors of money value for himself and his friends from railway companies, some of which were under the regulations of the Interstate Commerce Commission, subject to the review of the Court of Commerce. I consider this course of conduct, and each instance of it, to be a high crime and misdemeanor. I have voted not guilty upon the other articles, because, while most of them involved improper conduct, I do not consider that the acts proved are high crimes and misdemeanors."

The other measures acted upon in this final session of the Sixty-second Congress may be briefly summarized. On January 6 the ways and means committee of the House began public hearings preparatory to framing the tariff-revision bills for the special session. The House on January 14 endorsed President Taft's order placing fourth-class postmasters in the civil service. See CIVIL SERVICE, and section *Post Office* in this article. On January 8 the conference committees of the House and Senate considered the proposed immigration bill. The chief point in dispute was the literacy test. This was agreed to by the Senate and House on January 12. A report was adopted by the House on January 18. It contained a clause in regard to penal certificates, which was rejected by the Senate on January 21. This clause was dropped by the conference committee two days following. The House passed a measure without the certificate clause on January 26, and it was adopted by the Senate on February 2. On February 4 to February 6 President Taft held conferences with those in favor of and those opposing the bill. He vetoed the bill on February 15. It was repassed over his veto in the House, but failed to pass in the Senate. (See IMMIGRATION.) In the section above, entitled ***Pensions***, will be found statistics and other information relative to the subject in question. It may be stated here, however, that a pension bill passed in this session of Congress carried over $180,000,000, an increase of about $15,000,000 over the estimates of 1912. This was a direct consequence of the new pension legislation passed by the Sixty-second Congress. The river and harbor appropriation bill carried sums amounting to over $25,000,000, while the naval bill authorized two battleships besides minor vessels, an increase of about $23,000,000 over the appropriation of 1912.

The Senate on February 1 unexpectedly adopted, by a vote of one more than the necessary two-thirds, a resolution to amend the Constitution so that the President should serve for six years instead of four, and be ineligible for reëlection. The debates on this resolution seemed to indicate that the Senate did not take the proposition with great seriousness. The greater part of the time was taken up in discussing the question with regard to its effect upon the future of President Taft, of former President Roosevelt, and of Mr. Wilson, President-elect. The resolution, as passed by the Senate, provided that "the term of office of the President shall be six years; and no person who has held office by election, or discharged its powers or duties, or acted as President under the Constitution and laws made in pursuance thereof, shall be eligible to again hold office by election." In order that this resolution as passed by the Senate should be submitted to the States for their acceptance or rejection, it was necessary for it to be passed by a two-thirds vote of the House. This it failed to obtain.

A bill providing for a Department of Labor was signed by President Taft on March 4, which was practically his last official act. Both houses passed a measure approving the Lincoln Memorial, and, in the Senate, a bill was passed to make Senator Cullom commissioner.

The Webb liquor bill, forbidding the interstate shipment of liquor, was passed in the House on February 9 and in the Senate on February 11. The bill, as approved by the Senate, was passed on February 12. The bill was vetoed by President Taft, but was passed over his veto in both houses. See LIQUOR REGULATION.

Several bills relating to the Panama Canal tolls were introduced in this session. On January 19 a bill to bar trust-owned ships from the Panama Canal was introduced in the House. A bill introduced by Senator Root in the Senate providing for a repeal of the free-toll provision was tabled by the committee on inter-oceanic canals on February 18. A bill providing for the immediate independence of the Philippine Islands was introduced in the House, but no action was taken upon it.

The campaign fund committee which investigated the relations of certain Standard Oil officials and others with campaign funds, continued the hearings during the first part of this session. Additional letters alleged to have been written by John D. Archbold of the Standard Oil Company to the various legislators were presented and read. An investigation into the manner in which these letters became public was carried on by the committee, and the charge was made that they had been purchased by William R. Hearst from employes of the Standard Oil Company, who had stolen them from the private files of Mr. Archbold. The hearing was ended on February 11.

The commission on efficiency and economy, appointed by President Taft in 1911, reported on the Adjutant-General's office. The President asked for an appropriation to continue the investigation, but this was refused.

The committee on privileges and elections in the Senate investigated charges made against Senators Chilton and Watson, of West Virginia. These charges alleged that the legislature which elected them had been improperly influenced. The charges were dropped on February 9.

SUMMARY OF LEGISLATION. The Sixty-second session of Congress adjourned on March 4, 1913. Among the most important enactments made in this session in its two years of existence may be mentioned the constitutional amendment providing for the direct election of senators; the Russian Treaty resolution; statehood bills for Arizona and New Mexico; Panama Canal bill; the Alaskan civil service bill; the white slave bill; the phosporous match bill; the eight-hour government work bill; the Industrial Commission bill; the Department of Labor bill; the bird-protection bill; the wireless telegraph bill; the pension increase bill; the amendment to the food and drugs act; and the anti-prize-fight moving pictures bill. Important measures opposed and vetoed by President Taft were the tariff bills, the immigration bill, and the interstate liquor bill. The last named was passed over the President's veto.

Especially noteworthy events in the history of the Senate in this session were the expulsion of Senator Lorimer; the impeachment of Judge Archbald; the passage of a resolution amplifying the Monroe Doctrine; the failure of the so-called universal arbitration treaties; the extension of the arbitration treaty with France; and the passage of the fur-seal treaty and of the wireless telegraph treaty.

Perhaps the most notable feature in the life of this Congress was its sanction of certain measures intended primarily to advance home interests, such as the establishment of the Children's Bureau, the white slave bill, and the creation of a Department of Labor.

The Sixty-second Congress was especially liberal in the appropriation of money, and on this score was widely criticised. In its second session it added $25,000,000 a year to the pension list, and in the third session it proposed a public building measure which was almost universally condemned. Several towns with a population of not over 1000 inhabitants received appropriations for the construction of public buildings to cost $60,000 and more. This bill authorized a total expenditure of $35,000,000. In spite of liberality in appropriating for such purposes, Congress refused to authorize more than one battleship, although three were called for by the Navy Department. Congress continued the tradition condemned by most of its numbers, placing "riders" upon appropriation bills, thus allowing by indirection the securing of legislation which it knew could not be secured by direct means. Several of these bills were vetoed by President Taft for the reason that they carried these "riders."

THE SIXTY-THIRD CONGRESS—SPECIAL SESSION. During the first month of President Wilson's administration the announcement was made that an extraordinary session of Congress would be called on April 7 for the purpose primarily of formulating a new tariff bill. The Democratic members of the House held a caucus on March 6 and renominated Champ Clark to be speaker and Oscar W. Underwood chairman of the committee on ways and means. Mr. Underwood's position at the head of this committee gave him the chief hand in forming the tariff bill and directing its passage through the House. One feature of the special session created unusual interest. This was the announcement by President Wilson that he would personally deliver before Congress his message, or, more properly, address. For such personal delivery of the presidential message, however, both President Washington and President Adams had established precedents. His own explanation was given in these words: "The reasons are very simple. I think it is the most dignified way for the President to address the houses on the opening of the session, instead of sending the address by messenger, and letting the clerk read it perfunctorily. I thought that the dignified and natural thing was to read it. It is a precedent which, it is true, has been discontinued a long time, but which is a very respectable precedent."

President Wilson's address, which was not long, is given in full below.

"I have called the Congress together in extraordinary session because a duty was laid upon the party now in power at the recent elections which it ought to perform promptly in order that the burden carried by the people under existing law may be lightened as soon as possible, and in order, also, that the business interests of the country may not be kept too long in suspense as to what the fiscal changes are to be to which they will be required to adjust themselves. It is clear to the whole country that the tariff duties must be altered. They must be changed to meet the radical alteration in the conditions of our enconomic life which the country has witnessed within the last generation.

"While the whole face and method of our industrial and commercial life were being changed beyond recognition, the tariff schedules have remained what they were before the change began, or have moved in the direction they were given when no large circumstance of our industrial development was what it is to-day. Our task is to square them with the actual facts. The sooner that is done the sooner we shall escape from suffering from the facts, and the sooner our men of business will be free to thrive by the law of nature (the nature of free business) instead of by the law of legislation and artificial arrangement.

"We have seen the tariff legislation wander very far afield in our day—very far indeed from the field in which our prosperity might have had a normal growth and stimulation. No one who looks the facts squarely in the face or knows anything that lies beneath the surface of action can fail to perceive the principles upon which recent tariff legislation has been based. We long ago passed beyond the modest notion of 'protecting' the industries of the country, and moved boldly forward to the idea that they were entitled to the direct patronage of the government. For a long time—a time so long that the men now active in public policy hardly remember the conditions that preceded it—we have sought in our tariff schedules to give each group of manufacturers or producers what they themselves thought they needed in order to maintain a practically exclusive market as against the rest of the world. Consciously or unconsciously, we have built up a set of privileges and exemptions from competition behind which it was easy by any, even the crudest, forms of combination to organize monopoly; until at last nothing is normal, nothing is obliged to stand the tests of efficiency and economy, in our world of big business, but everything thrives by concerted arrangement. Our new principles of action will save us from a final hard crystallization of monopoly and a complete loss of the influences that quicken enterprise and keep independent energy alive.

"It is plain what those principles must be. We must abolish everything that bears even the semblance of privilege or of any kind of artificial advantage, and put our business men and producers under the stimulation of a constant necessity to be efficient, economical, and enterprising, masters of competitive supremacy, better workers and merchants than any in the world. Aside from the duties laid upon articles which we do not and probably cannot produce, therefore, and the duties laid upon luxuries and merely for the sake of the revenues they yield, the object of the tariff duties henceforth laid must be effective competition, the whetting of American wits by contest with the wits of the rest of the world.

"It would be unwise to move toward this end headlong, with reckless haste, or with strokes that cut at the very roots of what has grown up among us by long process and at our own invitation. It does not alter a thing to upset it and break it, deprive it of a chance to change. It destroys it. We must make changes in our fiscal laws, in our fiscal system, whose object is development, a more free and wholesome development, not revolution or upset or confusion. We must build up trade, especially foreign trade. We need the outlet and the enlarged field of energy more than we ever did before. We must build up industry as well, and must adopt freedom in the place of artificial stimulation only so far as it will build, not pull down.

"In dealing with the tariff the method by which this may be done will be a matter of judgment, exercised item by item. To some not accustomed to the excitements and responsibilities of greater freedom, our methods may in some respects and at some points seem heroic; but remedies may be heroic and yet remedies. It is our business to make sure that they are genuine remedies. Our object is clear. If our motive is above just challenge, and only an occasional error of jugment is chargeable against us, we shall be fortunate.

"We are called upon to render the country a great service in more matters than one. Our responsibility should be met and our methods should be thorough, as thorough as moderate and well considered, based upon the facts as they are, and not worked out as if we were beginners. We are to deal with the facts of our own day, with the facts of no other, and to make laws which square with those facts. It is best, indeed it is necessary, to begin with the tariff. I will urge nothing upon you now at the opening of your session which can obscure that first object or divert our energies from that clearly defined duty.

"At a later time I may take the liberty of calling your attention to reforms which should press close upon the heels of the tariff changes, if not accompanying them, of which the chief is the reform of our banking and currency laws; but just now I refrain. For the present I put these matters on one side and think only of this one thing—of the changes in our fiscal system which may best serve to open once more the free channels of prosperity to a great people whom we would serve to the utmost and throughout both rank and file."

The two houses of Congress at once made the necessary preparations for the active conduct of business. In the House Mr. Clark was reëlected speaker and Mr. Underwood chairman of the ways and means committee, in accordance with the action of the caucus referred to above. The Democrats had held a caucus for the election of officers, and this body had elected James P. Clarke of Arkansas, president *pro tempore*. It had been generally conceded before the meeting of the caucus that Senator Bacon of Georgia, would be honored with the appointment, and the election of Senator Clarke created considerable ill-feeling. There was a certain amount of friction, too, on account of the election of Senator Martin of Virginia chairman of the committee on appropriations, in place of Senator Tillman of South Carolina, who would have had it on the ground of priority. The reason given for choosing Senator Martin was Senator Tillman's age and physical infirmity. A number of new senators took their seats in this session, most of them Democrats. The greater number of these had been elected by legislatures in 1913 to succeed senators whose terms had already expired. These senators included two from Colorado, Charles S. Thomas and John F. Shafroth; Joe T. Robinson from Arkansas; Willard Saulsbury from Delaware; Edwin C. Burleigh from Maine; LeBaron B. Colt from Rhode Island; Henry F. Hollis from New Hampshire; Ollie M. James from Kentucky; J. Hamilton Lewis and Lawrence Y. Sherman from Illinois; George W. Norris from Nebraska; Joseph E. Randell from Louisiana; Morris Sheppard from Texas; John K. Shields from Tennessee; Thomas Sterling from South Dakota; William H. Thompson from Kansas; James K. Vardaman from Mississippi; Thomas J. Walsh from Montana; and John W. Weeks from Massachusetts. On the day following the convening of Congress, the Democratic members of the House of Representatives rejected the plan of an open caucus. The Republican members of the House, on the contrary, on April 11, voted for the first time in the history of the party for an open caucus.

The Tariff Bill. The tariff bill was the chief reason for the convening of the extraordinary session. It is discussed in full in the article TARIFF. There will be given here only a chronology of the passage of the bill through Congress. It was noted above that the ways and means committee of the House began hearings on the bill in January, and by the time Congress had convened it was practically ready to report a bill. President Wilson had been in constant communication with the members of the committee and had made many suggestions. A tentative draft of the bill was ready on April 5. This included free raw wool. The bill was presented to the Democratic caucus by Mr. Underwood on April 8. On April 10 Schedule A was adopted without amendment and part of Schedule B was approved the same day. On April 11 part of Schedule C, the metal schedule, was passed without amendment. Schedule D, dealing with wood, lumber, etc., was passed unchanged on April 12. The caucus passed the sugar provision without amendment, together with Schedule F, tobacco, on April 13. There was considerable discussion over Schedule G, agricultural products, and several amendments were offered. Schedule K, the wool schedule, was passed by the caucus without amendment, as was also the cotton schedule, on April 17. The wool, silk, pulp, and paper schedules were adopted without change on April 18. The income tax amendment was passed on April 19. On April 20 the caucus on the bill ended; on April 22 the bill was favorably reported in the House under the ways and means committee, and on the following day discussion began. Mr. Underwood spoke in support of the measure, and Mr. Gardner of Massachusetts, against it. There were five days of general debate, and, on April 29, the consideration of amendments was begun. On May 1 the House, by vote of 186 to 188, rejected the Republican proposal to strike from the bill the provisions placing sugar on the free list in three years. On May 2 an amendment to the cotton schedule was rejected, and, on May 3, by a vote of 193 to 74, the Republican substitute for the wool schedule was defeated. The provision placing raw wool on the free list was sustained on May 6. On the day following, consideration of the amendments was ended in the House, and, on May 8, the House by a vote of 281 to 139, passed the bill, including the income tax provisions. Five Democrats voted against the measure and two Republicans, four Progressives, and one Independent voted for it. The Senate received the tariff bill from the House on May 9, and on May 16 it was referred to the finance committee. A motion to instruct the committee to hold public hearings was rejected. The committee considered the bill until July 18, when it was reported to the Senate with a recommendation for passage. On the following day debate was begun. Senator Simmons of North Carolina, chairman of the finance committee, analyzed and defended the measure, and Senator Cummins of Iowa criticised it as unjust and discriminating. The bill was also attacked on July 22 by Senator Smoot of Utah and Senator Burton of Ohio, and on the same date Senator Chamberlain, a Democrat, declared that he was not bound to support it. The debate continued in the Senate until September 9. The chief opposition was to the wool and sugar schedules. The provision for free sugar was bitterly attacked by senators from Louisiana and senators from other States in which the growing of beet-sugar is important. The bill passed by a vote of 44 to 37, and was at once given to the conference committee of the House and Senate. The conference report was completed on September 29, and on the following day the House adopted it by a vote of 254 to 103. The Senate on October 2 adopted the conference report by a vote of 36 to 17, after receding from its amendment placing the tariff on cotton futures. The bill was signed by President Wilson on October 3.

Banking and Currency Bill. The banking and currency bill, known as the Owen-Glass bill, passed in the Sixty-third Congress, is treated in detail in other portions of the YEAR BOOK in the article BANKS AND BANKING, and in the FINANCIAL REVIEW. As in the case of the tariff, there is given here only a chronological summary of the principal events connected with the bill and its passage through the houses of Congress. It was well known that President Wilson wished the passage of currency and banking bills during the special session of Congress, although prominent members of his party in both houses expressed the opinion that it was unwise to attempt any other legislation than the tariff bill at this session. Scarcely was the administration organized, however, when the actual formulation of the currency and banking law began. President Wilson took an important part in the preliminary work. He held frequent conferences with Mr. Glass, chairman of the banking committee of the House, and Senator Owen, chairman of the committee on banking in the Senate. On January 16 the outline of the first tentative draft of a bill was completed by the banking committee of the House. This included a provision for fifteen reserve associations, composed of the national and State banks. Several changes were made in this bill, at the suggestion of President Wilson, and a full text was published on June 19. It was called the Federal reserve act. Hearings were held by Senator Owen and Mr. Glass in various cities of the country, in answer to protests made by bankers against certain provisions of the bill. On January 23 President Wilson addressed Congress on the necessity of money legislation during that session of Congress, and on June 26 the bill was introduced by Senator Owen in the Senate, by Representative Glass in the House, and consideration was begun by the Democratic committee on banking, to which it was referred. The committee made several amendments, but in its general features the bill remained the same. On August 11 the bill was approved by President Wilson and was submitted to the Democratic caucus. A motion to have the caucus opened to the public was defeated. The general debate in the caucus ended on August 20, and on August 28 the bill was adopted by the caucus. It was reintroduced into the House on the following day, and was reported by Representative Glass on September 9. It was severely attacked by Republican and Progressive representatives, and a few amendments were adopted. These were not of the first importance. The general debate closed on September 13, when the bill came up for amendments. It was passed in the House on September 18 by vote of 286 to 84. In the Senate consideration of the bill introduced by Senator Owen was refused until after the passage of the tariff bill. The Democratic caucus, however, on August 14 voted to discuss currency legislation without recess, and consideration of the bill in caucus was begun during the session. The committee on banks and banking held sessions at which bankers from all over the country were heard. Senator Owen and other members of the committee also made addresses in different parts of the country, explaining the bill. Action was delayed until the first part of October, when President Wilson expressed himself as dissatisfied with the slow progress of the bill on account of a prolonged hearing. The President's attitude of haste was resented by certain Democratic senators, including Senator O'Gorman of New York and Senator Reed of Missouri, who showed pronounced hostility to the bill as prepared by the committee. Differences in regard to certain provisions of the bill brought about a deadlock early in November. A Democratic caucus was called on November 12. The result was practically two bills prepared by two factions—one composed of all the Democratic senators except Senator Hitchcock, and the other Republican members of the committee with Senator Hitchcock. The committee decided to present these two bills to Congress separately, together with the original Owen-Glass bill, and the three drafts were reported on November 22. Senator Owen and five of his Democratic colleagues submitted a revised currency measure to Senator Hitchcock, Democrat, and five Republican members for a third bill. Senator Owen opened a debate on November 24 and offered his bill as a substitute for the House measure. On the following day Senator Hitchcock explained his currency bill to the Senate and criticised the Owen measure. The Democratic senators began the consideration of the bill in caucus on November 26. This continued throughout the remainder of the special session. On the convening of the first regular session of the Sixty-third Congress on December 1 the currency bill agreed upon by the Democratic caucus was introduced. The debate continued until the adjournment of Congress for the Christmas holidays. On December 13 Senator Root made a notable address in which he asserted that the bill as it stood at that time would cause an era of inflation and would result in catastrophe. As a result of criticism made by Senator Root, the Democratic senators held another caucus and increased the gold reserve provision and made other changes in the bill. On December 19 the bill passed the Senate by vote of 54 to 34, and was at once sent to conference. On December 22 the House adopted the conference report by a vote of 298 to 60. On December 23 the Senate did likewise, the vote being 43 to 25. On the latter date it was signed by President Wilson.

Safety at Sea or Seamen's Servitude Bill. A discussion of this bill in its relation to the subject of safety at sea will be found in the article with that title. The bill, however, contains certain provisions which properly come beyond the scope of safety at sea and which are radical departures from the statutes now in existence.

The bill was entitled an act to promote the welfare of American seamen in the merchant marine of the United States; to abolish arrest and imprisonment as a penalty for desertion; and to secure the abrogation of treaty provisions in relation thereto; and to promote safety at sea. The measure was a substitute to the bill prepared by Senator Nelson of the Senate committee on commerce and was introduced by Senator La Follette. It was passed by the Senate on October 23, and was referred to the committee on merchant marine and fisheries in the House of Representatives, where it still remained at the end of the year.

The notable new features in this bill were briefly as follows: The first section amended the old law by regulating the hours of labor at sea by dividing the sailors into at least two and the firemen into at least three watches. Section II amended the old law which deals with when and how the seamen shall be paid, by increasing the penalty for its violation. The old law provided one day's pay for each day that the seaman was compelled to wait for his pay beyond the time set by law; the new measure two days. Section III struck out from the old law the following: "unless the contrary be specially stipulated in the contract," and inserted in its place: "and all stipulations to the contrary shall be held void." The section thus amended gave the seaman the right to demand one-half of the wages due him in any port, notwithstanding any contract to the contrary, and extended its application to seamen on foreign vessels while in American harbors. Section IV amended the existing law so as to give a majority of the seamen, exclusive of the officers, a right to demand a survey of the vessel while in a foreign port to determine its seaworthiness. This is the existing law relative to vessels engaged in domestic trade.

Section V dealt with the quarters of the seamen. The section amended the existing law by striking out "not less than 72 cubic feet and not less than 12 square feet" for each seaman, and inserting "not less than 100 cubic feet and not less than 16 square feet" as forecastle space allotted for each member of the crew and by providing for opportunity for cleanliness. Section VI gave seamen the same freedom as landsmen when a vessel was in a safe harbor, and strengthened the enforcement of proper discipline at sea. Section VIII amended the old law relative to corporal punishment by enabling the seaman who has been thus punished to sue the vessel for damages, if the master permits the officer guilty of violation to escape. The old law permitted the master to be sued in such cases. Section IX amended the law to improve the legal rations so as to give one more quart of water and one more ounce of butter daily. Section X amended the existing law by prohibiting advances or allotments of seamen's wages except to near and dependent relatives. This custom had been a most pernicious and effective means through which the crimp has kept the seaman under his power and defrauded him of his earnings.

Section XI amended the existing law so as to give men employed in deep-sea fisheries the same protection against garnishments of their wages which is now enjoyed by seamen on other merchant vessels. Section XII was the most radical of the changes in the existing law. It proposed a standard of skill in the able seaman of three years' service on deck at sea or on the Great Lakes in 40 per cent. of the deck crew, exclusive of licensed officers, in the first year after the passage of this act, and gradually increased the number of able seamen required until it reaches 65 per cent. in five years after the passage of the act. It also provides that no vessel shall be permitted to leave any port of the United States unless she has a crew on board not less than 75 per cent. of which, in each department thereof, are able to understand any order given by the officer of such vessel. Passenger vessels are not permitted to depart unless they shall have a sufficient crew to man each lifeboat, with not less than two men with the rating of able seaman or higher. The crew of a lifeboat is from five to nine men. With two actually skilled men, as herein provided, and such training of the others as may be had on the vessel, it ought to be feasible for lifeboats to be lowered and managed on a rough sea. Section XIV provides for the repeal of existing laws relative to the arrest, imprisonment, or delivering up of deserting seamen to the vessels from which they deserted and for abrogation of all treaties in conflict with the provisions of this act.

There was much criticism of certain provisions of the bill by representatives of steamship companies. The most severe criticism was in regard to Section XII which stipulates that 75 per cent. of the crew in each department must be able to understand any order given by the officers. It was claimed that this provision would in effect divert a large volume of commerce from American to Canadian ports on both the Atlantic and Pacific coasts. In the opinion of these critics the most onerous stipulation was the requirement that there shall be two able seamen for every lifeboat. It was claimed that this requirement was against the public's interest in that it practically restricts the work of life-saving to a single department of the crew instead of requiring drill for such service for men in all departments, as is the present practice. It is claimed that by this provision the firemen, stewards, storekeepers, and other members of the crew who form by far the greater number on board a modern steamer, are excluded from lifeboat service, although it has been shown in many instances that these men do as good or better work than the men in the deck department. It was claimed by these organizations that the provision for the summary abrogation of treaties now in effect with the other leading commercial nations of the world which conflict with the provisions of this bill, would result in ill will and injury to commercial relations of the United States with these nations.

A special committee of the representative oceanic steamship lines concluded its summary as follows: "The fundamental objections to the proposed bill arise chiefly from the apparent ignorance of present-day conditions of ocean transportation on the part of the framers of the measure, and from the fact, obvious to anyone familiar with such conditions, that some of the features of the bill were instigated in the interest of a single class of workers, or rather the fractional part of that class represented by the Seamen's Union. Its practical effect, if not its deliberate purpose, would be to place the operations of steamships sailing from American ports at the mercy of this union without any regard to the interests of other classes of workers very much more numerous and whose welfare is equally important. It would tend to drive commerce away from American ports besides putting American manufacturers and exporters at a disadvantage in competing for foreign markets. By encouraging insubordination and placing a premium on desertion, it would decrease the efficiency of seamen and their ability to render useful service in time of emergency. Most serious of all, the bill as drawn will not accomplish what the Senate in passing it attempted to accomplish, namely, the assurance of adequate provision for safety under modern conditions of operation."

Lobby Investigations. On May 26 President Wilson, in a statement which was made public, declared that there was in existence in Washington a numerous, industrious, and insidious lobby working against certain measures in the proposed tariff bill. He said "newspapers are being filled with paid advertisements calculated to mislead not only the judgment of public men but also the public opinion of the country." To this assertion he added, "there is every evidence that money without limit is being spent to sustain this lobby and to create an appearance of a pressure of public opinion, antagonistic to some of the chief items of the tariff bill." The Senate several days later passed a resolution appointing a committee to investigate these charges. The first action of this committee was to summon before it each individual senator and question him as to his knowledge of the existence of a lobby, and as to his personal relations, if any, with lobbyists. Many of the senators embraced the opportunity to show that they had no private interests which would tend to make them favor such tariff privileges, and to deprecate the idea that there was in existence any such thing as a lobby in the improper sense of the word. Senator Penrose of Pennsylvania declared that the practice of lobbying in the old sense was practically dead, and that the number of lobbyists present in Washington during the discussion of the tariff bill was not half as great as those who attended Congress during the progress of the Payne-Aldrich bill. Senator Kenyon of Iowa, on the other hand, also a Republican, declared that President Wilson was quite right in the charges which he had made. He declared that while there might not be such attempts as formerly were made to influence senators in a direct manner, the methods employed were even more insidious, as they included flattery, social advancement, and entertainment. Senator Pittman of Nevada also endorsed President Wilson's assertion, and further claimed that there had been threats of intimidation as well as argument and flattery. Senator Smoot of Utah declared that false and misleading literature concerning labor conditions on beet-sugar farms had been issued by those opposed to the growing of beet sugar. Other senators criticised as unfair the methods of wool-growers' representatives. No senator admitted any direct connection with lobbyists. The sessions of the committee immediately succeeding were chiefly occupied with inquiries into the methods of the opponents of free sugar. Senator Townsend of Michigan created something of a sensation in the Senate by defining as a lobbyist a person whose business it is to promote or prevent legislation, and then cited President Wilson as the foremost representative of what the President had denounced as lobbying. He declared that the influence of the President had held several Democratic senators in line for the tariff bill, although it did not "coincide with their known publicly-expressed conviction." The evidence taken by the committee in relation to the steps of the sugar-growing interests to fight free sugar in the tariff bill, showed that money and effort had been spent with great freedom. No disclosures of dishonest methods, however, were made. One development of the testimony was a statement that thousands of copies of documents had been sent out by the opponents of free sugar under the franks of congressmen and senators, and that the text of these documents had been rewritten and changed at the expense of the sugar interests before they had been sent out as public documents from the government printing house.

The publication in a New York newspaper of matter furnished it by Martin L. Mulhall, formerly an agent of the National Association of Manufacturers, resulted in the calling of Mulhall before the committee to give testimony. He told a remarkable story of his alleged connection with representatives and senators in attempts to influence legislation. He began to give testimony on June 30, and continued on the stand at different times for two months following. He made detailed charges against certain senators and representatives, most of whom were dead, and against labor leaders, prominent manufacturers, and others. The charges were denied by the living persons against whom he had brought them. Following his appearance before the Senate committee he gave further testimony of the same nature before a similar committee appointed by the House. A still more sensational turn was given to the hearing of the Senate, when David Lamar, who had several years been known as a daring stock manipulator in New York City, testified early in July that he had in telephone messages to prominent financiers in New York urged them to employ Edward Lauterbach as counsel in the Union Pacific dissolution proceedings. In these conversations he impersonated Congressman Palmer and Congressman Riordan. He did this, he said, hoping that Lauterbach, who had previously done some work for the Morgan interests but had been dismissed by them, would be restored to favor. Lamar also charged that large sums had been taken by officers in dishonest transactions affecting the Union Pacific securities. Lamar before the committee also made charges against senators and congressmen. These were denied. Lamar was in September indicted for impersonation and was arrested. He was released on bail. Lamar offered to give testimony in regard to work as a lobbyist, but the Senate committee refused to hear him, insisting that he present a written statement. This he refused to do. At the end of the year no tangible results had come from these investigations, although it was generally admitted that the charges made by President Wilson had been maintained.

Other Events in the Special Session. A bill providing for the utilization of a portion of the Hetch-Hetchy Valley was introduced early in this session, but was not finally passed until after the convening of the first regular session. (See California.) On June 1 the immigration bill, known as the Burnett-Dillingham bill, vetoed by President Taft as passed by the Sixty-second Congress, was reintroduced in the Senate and in the House on June 13. No action was taken on the bill during this session. (See Immigration.) For an account of the President's signing of the sundry civil appropriation bill, which included a proviso that funds appropriated should not be used in prosecuting labor unions and farmers' associations, see Civil Service; and for an account of the appointment by the Senate of a committee to investigate conditions in West Virginia, see Strikes and West Virginia. On April 22 Senator Chamberlain introduced a resolution abrogating the Hay-Pauncefote and Clayton-Bulwer treaties with Great Britain. No action was taken on this during the session. Consideration of the Alaska railroad bill was taken up by the House committee on territories on July 10. No action was taken on this bill during this session. A measure was passed raising the legation at Madrid to an embassy. (See section *Diplomatic Service* above.) On August 8 Senator Johnston of Alabama died. (See Alabama.) On October 18 the Senate passed a bill prohibiting the sending of campaign funds from one State to another. During the closing days of this session the Senate committee on elections was engaged in framing a bill providing for the direct election of senators where no provisions had been made by State legislatures.

Sixty-third Congress—First Regular Session. There was no interval between the special session and the first regular session of the Sixty-third Congress. In the Senate, on December 1, an announcement was made at the end of the special session, and this was immediately followed by the formal opening of the regular session. On December 2 the President read his annual message, which was brief, occupying only thirty minutes. He gave no formal review of the work of the departments, but referred seekers of information to the reports of these departments.

Speaking of international affairs, he said that there were many happy manifestations of a growing cordiality and community of interest among the nations, which more and more readily were showing their willingness to bind themselves by solemn treaty to the processes of peace. There was, he said, only one cloud on the horizon, and that was hanging over Mexico. He declared: "There can be no certain prospect of peace in America until General Huerta has surrendered his usurped authority in Mexico; until it is understood on all hands, indeed, that such pretended governments will not be countenanced or dealt with by the government of the United States. We

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FOUR UNITED STATES SENATORS PROMINENT IN 1913

are the friends of constitutional government in America; we are more than its friends, we are its champions; because in no other way can our neighbors, to whom we would wish in every way to make proof of our friendship, work out their own development in peace and liberty. Mexico has no government. The attempt to maintain one at the City of Mexico has broken down, and a mere military despotism has been set up which has hardly more than the semblance of national authority."

He insisted that the condition of Mexico was such as to make it doubtful whether even the most elementary and fundamental rights, either of her own people or of the citizens of other countries resident within her territory, would long be safeguarded. He affirmed that even if Huerta had succeeded in his purpose, he would have set up nothing but a precarious and hateful power, whose eventual downfall would have left the country in a more deplorable condition than ever.

And he added: "But he has not succeeded. He has forfeited the respect and the moral support even of those who were at one time willing to see him succeed. Little by little he has been completely isolated. By a little every day his power and prestige are crumbling, and the collapse is not far away. We shall not, I believe, be obliged to alter our policy of watchful waiting. And then, when the end comes, we shall hope to see constitutional order restored in distressed Mexico by the concert and energy of such of her leaders as prefer the liberty of their people to their own ambitions."

Turning to domestic affairs, the President expressed a hope for the early enactment of the currency bill, but urged the necessity for special provision to facilitate the credits needed by farmers, and directed attention to the forthcoming report of the special commission which had studied the rural credit system of Europe. He dwelt upon the fact that the immediate service to be rendered to the business communities of the country was to prevent private monopoly more effectually than it had yet been prevented. His words were: "I think it will be easily agreed that we should let the Sherman anti-trust law stand, unaltered, as it is, with its debatable ground about it, but that we should as much as possible reduce the area of that debatable ground by further and more explicit legislation; and should also supplement that great act by legislation which will not only clarify it but also facilitate its administration and make it fairer to all concerned. It is of capital importance that the business men of this country should be relieved of all uncertainties of law with regard to their enterprises and investments and a clear path indicated which they can travel without anxiety. It is as important that they should be relieved of embarrassment and set free to prosper as that private monopoly should be destroyed. The ways of action should be thrown wide open."

This question, he said, would be the subject of a special message.

He then urged the prompt enactment of legislation for primary elections at which the voters might choose their nominees for the presidency without the intervention of nominating conventions. In his opinion, party conventions should be retained, but only for declaring and accepting the verdict of the primaries and formulating platforms, and they should consist of nominees for Congress and the Senate, the senators holding office, the national committeemen, and the candidates for the presidency, in order that the platforms might be framed by those responsible to the people for carrying them into effect.

In regard to the outlying territories of the United States, he said that the government was trustee for Porto Rico, Hawaii, and the Philippines, and that these territories once regarded as mere possessions, were "no longer to be selfishly exploited, but must be administered for the people who live in them." He said: "We can satisfy the obligations of generous justice toward the people of Porto Rico by giving them the ample and familiar rights and privileges accorded our own citizens in our own territories, and our obligations toward the people of Hawaii by perfecting the provisions for self-government already granted them, but in the Philippines we must go further. We must hold steadily in view their ultimate independence, and we must move toward the time of that independence as steadily as the way can be cleared and the foundations thoughtfully and permanently laid."

He recommended a full territorial form of government for Alaska, and the construction of a system of railways which the government should build and administer, controlling ports and terminals. He declared that a policy for exploiting the mineral resources of Alaska must be worked out on lines of practical expediency. He urged the enactment of a fair and effective employers' liability act.

On December 3 the House passed the Hay volunteer army bill providing for the raising of a volunteer army at the time of actual or threatened war to number 242,000 men, exclusive of militia or regulars. On December 6 the Senate passed the Hetch-Hetchy bill by a vote of 43 to 25. It had already passed the House. The House on December 8, by a vote of 317 to 11, passed the so-called Henley resolution approving the proposal of Winston Churchill, first lord of the admiralty of Great Britain, that the powers abstain from naval construction for a year. Hearings were held in the Senate over the admission of Blair Lee who had been senator from Maryland, and Frank P. Glass, who had been appointed senator from Alabama to succeed Senator Johnston.

FOREIGN RELATIONS

The year 1913 was a troubled one for American diplomacy. The new administration was obliged to meet and cope with the situation in Mexico left as a legacy from the previous administration, and had in addition a delicate problem which arose from the passage by the California legislature of laws forbidding the owning of land in that State by aliens. This was objected to by the Japanese government on the grounds that it formed a breach of treaty obligations. The relations of the United States with Mexico will be found treated in detail in the article MEXICO. The alien land law situation is treated under CALIFORNIA and some comments on the international side are included in the latter part of this section.

President Wilson early in his administration issued a statement outlining the attitude of the administration toward political conditions in Latin America. This statement, made public on March 11, was as follows:

"One of the chief objects of my administration will be to cultivate the friendship and deserve the confidence of our sister republics of Central and South America and to promote in every proper and honorable way the interests which are common to the peoples of the two continents.

"I earnestly desire the most cordial understanding and coöperation between the peoples and leaders of America and therefore deem it my duty to make this brief statement.

"Coöperation is possible only when supported at every turn by the orderly processes of just government based upon law, not upon arbitrary or irregular force. We hold, as I am sure all thoughtful leaders of republican government hold, that just government rests always upon the consent of the governed and that there can be no freedom without order based upon law and upon the public conscience and approval. We shall look to make these principles the basis of mutual intercourse, respect, and helpfulness between our sister republics and ourselves.

"We shall lend our influence of every kind to the realization of these principles in fact and practice, knowing that disorder, personal intrigue, and defiance of constitutional rights weaken and discredit government and injure none so much as the people who are unfortunate enough to have their common life and their common affairs so tainted and disturbed. We can have no sympathy with those who seek to seize the power of government to advance their own personal interests or ambition.

"We are the friends of peace, but we know that there can be no lasting or stable peace in such circumstances. As friends, therefore, we shall prefer those who act in the interests of peace and honor, who protect private rights, and respect the restraints of constitutional provisions. Mutual respect seems to us the indispensable foundation of friendship between states, as between individuals.

"The United States has nothing to seek in Central and South America except the lasting interests of the peoples of the two continents, the security of governments intended for the people and for no special group or interest, and the development of personal and trade relationships between the two continents which shall redound to the profit and advantage of both, and interfere with the rights and liberties of neither.

"From these principles may be read so much of the future policy of this government as it is necessary now to forecast, and in the spirit of these principles I may, I hope, be permitted with as much confidence as earnestness to extend to the governments of all the republics of America the hand of genuine disinterested friendship and to pledge my own honor and the honor of my colleagues to every enterprise of peace and amity that a fortunate future may disclose."

This statement of President Wilson as to the attitude of the United States and of his administration toward the other nations of the American continents, resulting in a measure from conditions in Mexico, Cuba, and Nicaragua, was received favorably both in the United States and in the countries most intimately concerned. It was issued at a time when a word of warning and advice was most timely. It was known that revolutionary plots were fermenting in Central America in two or three of the small republics. While there was nothing in the President's statement that could be construed as a threat, the disposition of the government to discourage revolution and disorder was apparent.

Cuba. The influence that the United States had upon the powers of Cuba was shown by the history of the so-called amnesty bill which was passed by the Cuban Congress and was said to have been signed by President Gomez shortly before he relinquished his office to his successor, President Menocal. It was charged that this bill was intended to embarrass Mr. Menocal by protecting those who had been accused of robbing the treasury during the Gomez administration. The amnesty granted was very wide and loose in its terms. While it was intended chiefly to apply to those who were engaged in recent uprisings, it would have had the effect of setting free many hundreds of criminals convicted of ordinary offenses. One reason for granting an amnesty to such persons was said to have been that there was no money with which to buy food for the prisoners and that the release of a thousand or more of them was absolutely necessary. One of the first official acts of Secretary Bryan was to protest against this bill in vigorous terms. This protest was made on the ground that the United States government is responsible for the financial stability of Cuba, and that the government could not pass by with indifference an attack on the incoming administration which included pardon of looters of the Cuban treasury. The pardon of such criminals, Mr. Bryan said, would invite future depredations. As a result of this remonstrance, President Gomez expressed his willingness to take up the matter anew and to ask the Cuban Congress to pass a new bill which would be free from the objections brought against the original bill by the United States government. Such a bill was signed by President Gomez on April 28. A special mission was sent by the United States government to attend the inauguration of President Menocal on May 18.

Nicaragua. In the closing days of Mr. Taft's administration the State Department negotiated with Nicaragua a treaty, which gave the United States exclusive inter-oceanic rights on the Nicaragua canal route, a naval station on the Gulf of Fonseca, and several small islands for $3,000,000. This agreement was so expanded by President Wilson and Mr. Bryan that it virtually provided for a protectorate over Nicaragua. To the original treaty was added in substance the clauses of the Platt amendment relating to Cuba. One of these clauses forbade Nicaragua to make with any foreign power any compact that would impair her independence, or permit any foreign power to obtain by colonization or for military or naval purposes, control over any part of her territory. Another clause restricted Nicaragua from contracting public debts. In a third, Nicaragua consented to the intervention of the United States for the preservation of her independence in the maintenance of good government. In return the United States guaranteed

Nicaragua's public debt. This treaty met with opposition in the Senate committee on foreign relations. It was opposed also by governors of several Central American countries. Honduras and Salvador refused to consider the formulation of similar treaties. On August 2 the treaty as proposed by the administration was rejected by the Senate committee on account of the feature providing for a practical protectorate. Mr. Bryan thereupon declared that he would not resubmit the treaty until the winter of 1914. President Wilson early in December made it known that he wished the terms of the Nicaraguan treaty extended to all Central American republics. On December 15 a protest against the Nicaragua treaty was sent to Congress by the Salvadorean committee of the National Central American Association.

Santo Domingo. A reported revolution in this country caused the United States government to send a cruiser for the protection of American citizens early in September. At the suggestion of the American minister, negotiations for a settlement of the difficulties were begun in the latter part of February. The minister set forth to General Vasquez, the provisional president of the revolutionists, and his associates, the policy of the United States government in regard to such revolutions. This was in substance that the United States would support the constitutional authorities and would not recognize any government established by force. The revolutionists were told that if they should be successful they could have no part in the customs revenue, which for some years has been collected under the supervision of an American officer. Of the present revenue the government of Santo Domingo receives about half, and the remainder is deposited for payment of the foreign debt of the country. As a result of these representations, the threatened outbreak was averted, and commissioners of the Dominican government and representatives of the United States government signed an agreement of peace in Washington on October 9. The Dominican commissioners were accompanied by the American minister and the American collector of customs. In addition the United States government also undertook to see that a fair election was held in December, and in accordance with this promise a number of American officials were sent to Santo Domingo to inspect the elections held on December 16. They reported that a fair election had been held.

Colombia. The relations with Colombia, which have been unsatisfactory since the events connected with the independence of Panama and the cession by that country to the United States of rights of the Panama Canal, continued unsettled during 1913. Proposals were made by the United States government for settlement of the disputed questions during the last months of President Taft's administration. These, however, were rejected by the Panama government and no further overtures were made by the Republican administration. Rejection of these proposals was supposed to be based on the hope of greater concessions from the Democratic administration. President Restrepo, in a message to the Colombian Congress on July 22, spoke of the desirability of an understanding with the United States, and expressed the hope that satisfactory terms for settlement would be presented to Congress. Statements in regard to the rejection of the Herran-Hay treaty by the Colombian Congress were made in July and August by the minister from Colombia and others. It was claimed that the rejection of the treaty was due to the desire to preserve national honor, and that it had no connection with the hope for greater concessions in the United States. Rumors that a canal to rival the Panama Canal might be built with English capital found their way into the public press late in September. There was no definite proof that such an undertaking was seriously considered. The Colombian Senate adopted a resolution of protest against the observance of the tenth anniversary of the separation of Panama from Colombia November 6, and on November 28 the Colombian Congress protested to Cuba against the "plunder of Panama" by President Roosevelt. No definite action had been taken to bring an end to these disagreements at the end of the year. (See COLOMBIA, *History.*)

Other Latin-American Countries. Relations with other Latin-American countries were friendly during 1913. Dr. Lauro S. Muller visited the United States during May to repay officially the visit of Elihu Root to Brazil in 1911. Arbitration treaties were concluded with several South and Central American countries, including Honduras, Salvador, Guatemala, Panama, and Uraguay. (See ARBITRATION, INTERNATIONAL.)

Canada. The relations between Canada and the United States during the year were friendly. In December, President Wilson appointed Dr. Hugh M. Smith to arrange an agreement regarding regulations governing inland fisheries.

Great Britain. Diplomatic relations with Great Britain in 1913 were chiefly related to affairs in Mexico. These were delicate and complicated, but friendly understanding between the two countries remained unchanged during the year. (For an account of episodes connected with this situation see MEXICO.) It was announced in October that British warships would be sent to celebrate the opening of the Panama Canal. The decision of the British government that it would not take official part in the Panama Pacific Exposition was deeply regretted, but the hope was cherished that this decision would be reconsidered. (See EXPOSITIONS.) For notes on the renewal of the arbitration treaty between Great Britain and the United States, see ARBITRATION, INTERNATIONAL.

Russia. The commercial treaty between the United States and Russia, which was abrogated by the United States in 1911, lapsed on January 1, 1913. A *modus vivendi*, under which American consuls can act, was arranged between the two countries. No attempt was made to negotiate a new treaty during the year. A report that Russia had declined to make a new treaty was denied by Secretary Bryan. It was announced in October that the Russian government would send naval officers to celebrate the opening of the Panama Canal. For comment on the ritual murder trial and the relation of the United States to this, see JUDAISM.

Other European Countries. There were no matters of great importance in the relations of the United States with other European countries. There was some criticism of the administration of the tariff law in Germany, France, and elsewhere. For the consideration of such matters, see the article Tariff.

Japan. The passage of the anti-alien land ownership law by the California legislature is followed in detail in the article California. Here only the international aspect of the case is in question. On April 4 the Japanese ambassador, Viscount Chinda, made an informal protest to Secretary Bryan against the proposed legislation on the ground that it violated treaty rights of Japan, and on April 12 the formal protest of the Japanese government was handed to the Secretary of State. In the days following the Japanese ambassador conferred with Secretary Bryan and expressed himself as pleased by the action taken by the administration to eliminate the objectionable phrasing of the bill. After the passage of the bill it was announced that Japan would seek redress either in the courts or by arbitration. The reply of the United States government to the Japanese protest was made on May 19. These communications were not made public, so that only inferences could be drawn as to their contents. It was reported, however, that the Japanese government was discontented with the reply of the United States. Counter-response to the United States' answer was handed to the Department of State on June 4, and two days later Viscount Chinda discussed the situation with President Wilson. A further argument against the bill was cabled to the Japanese embassy on July 1, and the contents of this were presented to Secretary Bryan as a supplementary note on the following day. Mr. Bryan conferred with Viscount Chinda several days later, and on July 16 a reply to this note was given him by Mr. Bryan. These communications were not made public, but, as report had it, they were not satisfactory to the Japanese government. A fourth note, said to be couched in a more friendly tone, was received by the State Department on August 26. It was said that an agreement was arrived at by which the anti-alien law might be tested in the courts. On September 30 a fifth note was sent to Washington, and in this situation negotiations remained at the end of the year. The arbitration treaty with Japan expired in 1913, and although a new treaty was signed by Secretary Bryan and the Japanese ambassador, it had not been ratified by the Senate at the end of the year.

China. On May 2, on the complete organization of the Chinese Parliament, the United States formally recognized the republic of China. The instructions of the State Department were carried out by Edward T. Williams, secretary of the American legation at Peking, temporarily in charge of American diplomatic affairs. The action of President Wilson in removing the governmental authority of the United States from the so-called six-power loan for the construction of railways in China is noted in the section *Administration.*

Elections of November, 1913

The elections of November, 1913, were almost entirely limited to municipal officers. There were elections for governor in three States only —Massachusetts, New Jersey, and Virginia. There was an election for United States senator in Maryland, and four representatives were chosen to fill vacancies caused by death and resignation.

The more detailed accounts of the election in the various States will be found in the political notes in the articles on these States. This paragraph is intended to be only a general summing up of the leading results. In Massachusetts there were four candidates for governor. Governor Foss, who had been elected as a Democrat, decided to run independently on the ground of his decided opposition to the new tariff, and to the general policies of the administration. The Democratic candidate was Lieutenant-Governor Walsh, who was nominated as a strong supporter of President Wilson's administration. The Republican candidate, Congressman Augustus P. Gardner, represented direct and marked opposition to the party in power at Washington. The fourth and Progressive candidate was Charles S. Bird. Lieutenant-Governor David I. Walsh was elected, receiving 180,460 votes to 126,700 cast for Mr. Bird, 116,300 for Mr. Gardner, and 20,900 for Mr. Foss.

In New Jersey the Republican candidate was Edward C. Stokes. Governor James F. Fielder, who became governor on the resignation of Woodrow Wilson in 1912, was Democratic candidate. Everett Colby, who for many years has been an aggressive champion of reform measures in New Jersey, was Progressive candidate. Governor Fielder was elected with 173,148 votes, against 140,298 for Mr. Stokes and 41,132 for Mr. Colby.

The election in Maryland, which resulted in the popular choice of Blair Lee as United States senator, derived national interest from the fact that Mr. Lee is a Democrat of the progressive type, and made his canvass without the support of the organization of the Maryland Democracy. His Republican opponent was Thomas Parran. Mr. Lee was elected by a vote of 112,000, compared to 71,000 for Mr. Parran. This was the first popular election held under the provision of the Seventeenth Amendment, providing for direct election of senators. There was a Progressive candidate in the field, George Wellington, but he made little active canvass.

Perhaps the most significant election of all was that held in New York City, where John Purroy Mitchel, a fusion candidate, was elected mayor by a vote of approximately 356,000, against 235,000 for Edward E. McCall, who was the candidate for the Democratic party, represented and controlled by Tammany Hall. Mr. Mitchel's vote was nearly 50 per cent. greater than that of Mr. McCall's. Mr. Mitchel was at the head of the non-partisan citizens' ticket, which had been made by a large committee and subsequently ratified and accepted by the Republican party, Progressive party, and several groups of Independents, Democrats, and other elements. In addition to Mr. Mitchel, the fusion candidates for other important offices were elected. These included William A. Prendergast, comptroller; George A. McAneny, president of the board of aldermen; Marcus M. Marks, president of the Borough of Manhattan. These, with the presidents of other boroughs, make up the board of estimate and apportionment, which is the chief legislative body of the city government. The president of the Borough of Queens was the only Democratic candidate elected, and he will be the only representative of the Democratic party in the board. The election of Mr. Mitchel was due to a large extent to the break between Tammany Hall and

Governor Sulzer, an account of which will be found in detail in the political section of the article NEW YORK.

Other important municipal elections attracted considerable attention. In Philadelphia members of the Select and Common councils were elected. There was no election for mayor, as Mr. Blankenburg's term had not expired. The fusionists were unsuccessful in this election, as the old Republican machine came again into power with the election of a majority of Republican members of these councils. In Pittsburgh the Republicans supported James G. Armstrong, who was elected against the candidate supported by Independents and Progressives. Newton D. Baker was reëlected mayor in Cleveland, and George J. Karb, Democrat, was reëlected in Columbus. In Cincinnati the Republican organization succeeded in defeating Mayor Hunt, who was supported by Democrats and non-partisan municipal reformers. His successful opponent was Frederick S. Spiegel. The Socialist mayor of Schenectady, N. Y., George R. Lunn, was defeated, although he had a larger vote than in 1911. (See SOCIALISM.) Opposed to him was a fusion of Republicans, Democrats, and Progressives. In Indianapolis the Democratic candidate, Joseph E. Bell, was elected, and Louisville and Buffalo also elected Democratic mayors. In Toledo Brand Whitlock, who had been several times elected mayor on a reform platform, did not stand for reëlection, and Charles H. Keller, Republican, was elected. Representatives in Congress elected were as follows: Calvin D. Paige, Republican, third Massachusetts district; George W. Loft, Democratic, thirteenth New York district; Jacob A. Canton, Democratic, twentieth New York district; and Charles P. Coady, Democratic, third Maryland district.

In general, supporters of all parties were able to derive some satisfaction from the result of the elections, and it was generally conceded that President Wilson had great reason for being gratified with the results in different States. While the Democrats were defeated in New York City, it is well known that President Wilson was in favor of the election of Mr. Mitchel, whom he had several months before appointed as collector of the port of New York. The Democrats were successful in the three State elections held, and the result in New Jersey was particularly gratifying to the President, as it indicated a support of the policies which he had inaugurated while he was governor of the State, and which had been supported by Mr. Fletcher during his incumbency of the office.

DEPARTMENT OFFICERS IN 1913

Below will be found a list of the heads of various bureaus and divisions of the administrative departments.

Department of State. Secretary of State, William Jennings Bryan; Counselor for the Department of State, John Bassett Moore; Solicitor, Joseph W. Folk; Assistant Secretary, John E. Osborne; Second Assistant Secretary, Alvey A. Adee; Chief of the Consular Service, Herbert C. Hengstler; Chief of the Diplomatic Service, Sydney I. Smith; Chief of the Division of Far Eastern Affairs, Ransford S. Miller; Chief of the Division of Latin-American Affairs, Boaz W. Long; Chief of the Division of Near Eastern Affairs, Albert H. Putney.

Department of the Treasury. Secretary of the Treasury, William Gibbs McAdoo; Assistant Secretaries, Charles S. Hamlin, Byron R. Newton; Chief of the Secret-Service Division, William J. Flynn; General Superintendent of the Life-Saving Service, S. I. Kimball; Register of the Treasury, Gabe E. Parker; Treasurer of the United States, John Burke; Commissioner of Internal Revenue, William H. Osborn; Director of the Mint, George E. Roberts; Surgeon-General of the Bureau of Public Health, Rupert Blue; Commandant of the Revenue-Cutter Service, Captain Ellsworth P. Bertholf.

Department of War. Secretary of War, Lindley M. Garrison; Assistant Secretary of War, Henry S. Breckinridge; Chief of Staff, Major-General Leonard Wood; Chief of the Coast Artillery Division, Brigadier-General Erasmus M. Weaver; Chief of the Division of Militia Affairs, Brigadier-General Albert L. Mills; Adjutant-General, Brigadier-General George Andrews; Inspector-General, E. A. Garlington; Judge Advocate-General, Brigadier-General Enoch H. Crowder; Chief of the Quartermaster Corps, Major-General James B. Aleshire; Surgeon-General, Brigadier-General George H. Torney; Chief of Engineers, Brigadier-General Dan C. Kingman; Chief of Ordnance, Brigadier-General William Crozier; Chief Signal Officer, Brigadier-General George P. Scriven; Chief of the Bureau of Insular Affairs, Brigadier-General Frank McIntyre; Chief of the Board of Engineers for Rivers and Harbors, Colonel William M. Black.

Department of Justice. Attorney-General, James Clark McReynolds; Solicitor-General, John William Davies; Assistant Attorneys-General, Winfred T. Denison, Ernest Knaebel, Jesse C. Adkins, Samuel Huston Thompson, Jr., Samuel J. Graham, William Wallace, Jr.; Chief of the Division of Investigation, A. Bruce Bielaski.

Post Office Department. Postmaster-General, Albert Sidney Burleson; Chief Clerk, Merritt O. Chance; First Assistant Postmaster-General, Daniel C. Roper; Second Assistant Postmaster-General, Joseph Stewart; Third Assistant Postmaster-General, Alexander M. Dockery; Fourth Assistant Postmaster-General, James I. Blakslee.

Department of the Navy. Secretary of the Navy, Josephus Daniels; Assistant Secretary, Franklin D. Roosevelt; Admiral of the Navy, George Dewey; Chief of the Bureau of Investigation, Rear-Admiral Victor Blue; Chief of the Bureau of Yards and Docks, Civil Engineer H. R. Stanford; Chief of the Bureau of Ordnance, Rear-Admiral Joseph Strauss; Chief of the Bureau of Construction and Repair, Chief Constructor Richard Morgan Watt; Chief of the Bureau of Steam Engineering, Robert S. Griffin; Chief of the Bureau of Supplies and Accounts, Paymaster-General James J. Cowie; Chief of the Bureau of Medicine and Surgery, Surgeon-General C. F. Stokes; Judge Advocate-General, Captain Ridley McLean; Solicitor, Graham Egerton; General Board, President, Admiral George Dewey; Rear-Admirals C. E. Vreeland, W. H. H. Southerland, A. M. Knight, and B. A. Fiske; Captains, A. G. Winterhalter, T. S. Rodgers, H. S. Knapp, John Hood, and W. R.

Shoemaker; President of the Naval Examining Board, Rear-Admiral Thomas B. Howard.

Department of the Interior. Secretary of the Interior, Franklin Knight Lane; First Assistant Secretary, A. A. Jones; Commissioner of the General Land Office, Clay Tallman; Commissioner of Patents, Thomas Ewing; Commissioner of Pensions, Gaylord M. Saltzgaber; Commissioner of Indian Affairs, Cato Sells; Commissioner of Education, Philander P. Claxton; Director of the Geological Survey, George Otis Smith; Director of the Reclamation Service, Frederick H. Newell; Director of the Bureau of Mines, J. A. Holmes.

Department of Agriculture. Secretary of Agriculture, David Franklin Houston; Chief of the Weather Bureau, Charles F. Marvin; Chief of the Bureau of Animal Industry, A. D. Melvin; Chief of the Bureau of Plant Industry, William A. Taylor; Forester and Chief of the Forest Service, Henry S. Graves; Chief of the Bureau of Chemistry, Carl L. Alsberg; Chief of the Bureau of Soils, Milton Whitney; Chief of the Bureau of Entomology, L. O. Howard; Chief of the Bureau of Biological Survey, H. W. Henshaw; Chief of the Division of Publications, Joseph A. Arnold; Chief of the Bureau of Statistics, Leon M. Estabrook; Director of Public Roads, Logan Waller Page.

Department of Commerce. Secretary of Commerce, William Cox Redfield; Director of the Bureau of the Census, William J. Harris; Director of the Bureau of Corporations, Joseph E. Davies; Chief of the Bureau of Foreign and Domestic Commerce, Albertus H. Baldwin; Director of the Bureau of Standards, S. W. Stratton; Commissioner of the Bureau of Fisheries, Hugh M. Smith; Commissioner of the Bureau of Lighthouses, George R. Putnam; Superintendent of the Coast and Geodetic Survey, Otto H. Tittmann; Commissioner of the Bureau of Navigation, Eugene Tyler Chamberlain; Inspector-General of the Steamboat-Inspection Service, George Uhler.

Department of Labor. Secretary of Labor, William Bauchop Wilson; Commissioner-General of Immigration, Anthony Caminetti; Commissioner of Naturalization, Richard K. Campbell; Commissioner of Labor Statistics, Royal S. Meeker; Chief of the Children's Bureau, Julia C. Lathrop.

Other officers not connected with any particular department include the following: Director of the Pan-American Union, John Barrett; International Waterways Commission, Brig.-Gen. O. H. Ernst, George Clinton, and Prof. E. E. Haskell; International Joint Commission, Hon. James A. Tawney, Hon. George Turner, Hon. Obediah Gardner; Interstate Commerce Commission, Chairman, Edgar E. Clark; Commissioners, Judson C. Clements, Charles A. Prouty, James S. Harlan, Charles C. McChord; Civil Service Commission, John A. McIlhenny, Charles M. Galloway, Herman W. Craven.

Representation in the Sixty-third Congress

Following is a list of the senators and representatives from the different States in the Sixty-third Congress. There was one vacancy in the Senate at the beginning of the regular session, resulting from the death of Senator Johnston of Alabama. The vacancy had not been filled at the end of the year. From the table at the end of this list it will be noted that the total membership of the Senate at the end of the year was 95, of whom 51 were Democrats, 43 Republicans, and 1 Progressive. The Progressive was Senator Poindexter of Washington. In the House, with a membership when full of 435, there was one vacancy. The political division in the House was as follows: Democrats, 290; Republicans, 123; Progressive Republicans, 5; Progressives, 15; Independent, 1.

The names of Democrats are in Roman type; of Republicans in italics; of Progressive Republicans in italics with * ; of Progressives in small capitals; of Independents in capitals.

ALABAMA.—Senators: 1919, John H. Bankhead. Representatives (Democrats 10): At large, John W. Abercrombie; George W. Taylor, S. Hubert Dent, Jr., Henry D. Clayton, Fred L. Blackmon, J. Thomas Heflin, Richmond P. Hobson, John L. Burnett, William Richardson, Oscar W. Underwood.

ARIZONA.—Senators: 1917, Henry F. Ashurst; 1915, Marcus A. Smith. Representative (Democrat 1): At large, Carl Hayden.

ARKANSAS.—Senators: 1915, James P. Clarke; 1919, Joe T. Robinson. Representatives (Democrats 7): Thaddeus H. Caraway, William A. Oldfield, John C. Floyd, Otis Wingo, H. M. Jacoway, Samuel M. Taylor, William S. Goodwin.

CALIFORNIA.—Senators: 1915, *George C. Perkins;* 1917, *John D. Works.* Representatives (Democrats 3, Republicans 4, Progressive Republicans 3, Independent 1): WILLIAM KENT, John E. Raker, *Charles F. Curry, Julius Kahn, John I. Nolan,* Joseph R. Knowland,* Denver S. Church, *Everis A. Hayes, Charles W. Bell,* William D. Stephens,** William Kettner.

COLORADO.—Senators: 1915, Charles S. Thomas; 1919, John F. Shafroth. Representatives (Democrats 4): At large, Edward T. Taylor, Edward Keating; George J. Kindel, H. H. Seldomridge.

CONNECTICUT.—Senators: 1915, *Frank B. Brandegee;* 1917, *George P. McLean.* Representatives (Democrats 5): Augustine Lonergan, Bryan F. Mahan, Thomas L. Reilly, Jeremiah Donovan, William Kennedy.

DELAWARE.—Senators: 1917, *Henry A. du Pont;* 1919, Willard Saulsbury. Representative (Democrat 1): At large, Franklin Brockson.

FLORIDA.—Senators: 1915, Duncan U. Fletcher; 1917, Nathan P. Bryan. Representatives (Democrats 4): At large, Claude L'Engle; Stephen M. Sparkman, Frank Clark, Emmett Wilson.

GEORGIA.—Senators: 1919, Augustus O. Bacon; 1915, Hoke Smith. Representatives (Democrats 12): Charles G. Edwards, Frank Park, Charles R. Crisp, William C. Adamson, William S. Howard, Charles L. Bartlett, Gordon Lee, Samuel J. Tribble, Thomas M. Bell, Thomas W. Hardwick, J. Randall Walker, Dudley M. Hughes.

IDAHO.—Senators: 1919, *William E. Borah;* 1915, *James H. Brady.* Representatives (Republicans 2): At large, *Burton L. French, Addison T. Smith.*

ILLINOIS.—Senators: 1919, J. Hamilton Lewis; 1915, *Lawrence Y. Sherman.* Representatives (Democrats 20, Republicans 4, Progressive Republican 1, Progressives 2): At large, Lawrence B. Stringer, William E. Williams; *Martin B. Madden, James R. Mann,* George E. Gorman, James T. McDermott, Adolph J. Sabath, James McAndrews, Frank Buchanan, Thomas Gallagher, *Fred A. Britten,* Chas. M. Thomson, *Ira C. Copley,** Wm. H. Hinebaugh, *John C. McKenzie,* Clyde H. Tavenner, Stephen A. Hoxworth, Claudius U. Stone, Louis FitzHenry, Frank T. O'Hair, Charles M. Borchers, Henry T. Rainey, James M. Graham, William N. Baltz, Martin D. Foster, H. Robert Fowler, Robert P. Hill.

INDIANA.—Senators: 1915, Benjamin F. Shively; 1917, John W. Kern. Representatives (Democrats 13): Charles Lieb, William A. Cullop, William E. Cox, Lincoln Dixon, Ralph W. Moss, Finly H. Gray, Charles A. Korbly, John A. M. Adair, Martin A. Morrison, John B. Peterson, George W. Rauch, Cyrus Cline, Henry A. Barnhart.

IOWA.—Senators: 1915, *Albert B. Cummins;* 1919, *William S. Kenyon.* Representatives (Democrats 3, Republicans 8): *Charles A. Kennedy,* I. S. Pepper, Maurice Connolly, *Gilbert N. Haugen, James W. Good,* Sanford Kirkpatrick, *S. F. Prouty, Horace M. Towner, William R. Green, Frank P. Woods, George C. Scott.*

KANSAS.—Senators: 1915, *Joseph L. Bristow;* 1919, William H. Thompson. Representatives (Democrats 5, Republicans 2, Progressive 1): *Daniel R.*

Anthony, Jr., Joseph Taggart, *Philip P. Campbell,* Dudley Doolittle, Guy T. Helvering, John R. Connelly, George A. Neeley, VICTOR MURDOCK.

KENTUCKY.—SENATORS: 1915, *William O. Bradley;* 1919, Ollie M. James. REPRESENTATIVES (Democrats 9, Republicans 2): Alben W. Barkley, Augustus O. Stanley, Robert Y. Thomas, Jr., Ben Johnson, Swagar Sherley, Arthur B. Rouse, J. Campbell Cantrill, Harvey Helm, W. J. Fields, *John W. Langley, Caleb Powers.*

LOUISIANA.—SENATORS: 1915, John R. Thornton; 1919, Joseph E. Ransdell. REPRESENTATIVES (Democrats 8): Albert Estopinal, H. Garland Dupré, Robert F. Broussard, John T. Watkins, Walter Elder, Lewis L. Morgan, Ladislas Lazaro, James B. Aswell.

MAINE.—SENATORS: 1917, Charles F. Johnson; 1919, *Edwin C. Burleigh.* REPRESENTATIVES (Democrat 1, Republicans 3): *Asher C. Hinds,* Daniel J. McGillicuddy, *John A. Peters, Frank E. Guernsey.*

MARYLAND.—SENATORS: 1915, John Walter Smith; 1919, Blair Lee. REPRESENTATIVES (Democrats 6): J. Harry Covington, J. Fred. C. Talbott, Charles P. Coady, J. Charles Linthicum, Frank O. Smith, David J. Lewis.

MASSACHUSETTS.—SENATORS: 1917, *Henry Cabot Lodge;* 1919, *John W. Weeks.* REPRESENTATIVES (Democrats 8, Republicans 8): *Allen T. Treadway, Frederick H. Gillett, Calvin D. Paige, Samuel E. Winslow, John J. Rogers, Augustus P. Gardner,* M. F. Phelan, Frederick S. Deitrick, *Ernest W. Roberts,* William F. Murray, Andrew J. Peters, James M. Curley, John J. Mitchell, Edward Gilmore, *William S. Greene,* Thomas C. Thacher.

MICHIGAN.—SENATORS: 1919, *William Alden Smith;* 1917, *Charles E. Townsend.* REPRESENTATIVES (Democrats 2, Republicans 9, Progressives 2): At large, *Patrick H. Kelley;* Frank E. Doremus, Samuel W. Beakes, *J. M. C. Smith, Edward L. Hamilton, Carl E. Mapes, Samuel W. Smith, Louis C. Cramton, Joseph W. Fordney, James C. McLaughlin,* ROY O. WOODRUFF, *Francis O. Lindquist,* WILLIAM J. MACDONALD.

MINNESOTA.—SENATORS: 1919, *Knute Nelson;* 1917, *Moses E. Clapp.* REPRESENTATIVES (Democrat 1, Republicans 9): At large, *James Manahan; Sydney Anderson,* Winfield S. Hammond, *Charles R. Davis, Frederick C. Stevens, George R. Smith, Charles A. Lindbergh, Andrew J. Volstead, Clarence B. Miller, Halvor Steenerson.*

MISSISSIPPI.—SENATORS: 1917, John Sharp Williams; 1919, James K. Vardaman. REPRESENTATIVES (Democrats 8): Ezekiel S. Candler, Jr., Hubert D. Stephens, Benj. G. Humphreys, Thomas U. Sisson, S. A. Witherspoon, B. P. Harrison, Percy E. Quin, James W. Collier.

MISSOURI.—SENATORS: 1915, William J. Stone; 1917, James A. Reed. REPRESENTATIVES (Democrats 14, Republicans 2): James T. Lloyd, William W. Rucker, Joshua W. Alexander, Charles F. Booher, William P. Borland, Clement C. Dickinson, Courtney W. Hamlin, Dorsey W. Shackleford, Champ Clark, *Richard Bartholdt,* William L. Igoe, *L. C. Dyer.* Walter L. Hensley, Joseph J. Russell, Perl D. Decker, Thomas L. Rubey.

MONTANA.—SENATORS: 1917, Henry L. Myers; 1919, Thomas J. Walsh. REPRESENTATIVES (Democrats 2): At large, John M. Evans, Tom Stout.

NEBRASKA.—SENATORS: 1917, Gilbert M. Hitchcock; 1919, *George W. Norris.* REPRESENTATIVES (Democrats 3, Republicans 3): John A. Maguire, C. O. Lobeck, Dan V. Stephens, *Charles H. Sloan, Silas R. Barton. Moses P. Kinkaid.*

NEVADA.—SENATORS: 1915, Francis G. Newlands; 1917, Key Pittman. REPRESENTATIVE (Republican 1): At large, *E. E. Roberts.*

NEW HAMPSHIRE.—SENATORS: 1915, *Jacob H. Gallinger;* 1919, Henry F. Hollis. REPRESENTATIVES (Democrats 2): Eugene E. Reed, Raymond B. Stevens.

NEW JERSEY.—SENATORS: 1917, James E. Martine; 1919, William Hughes. REPRESENTATIVES (Democrats 11, Republican 1): *William J. Browning,* J. Thompson Baker, Thomas J. Scully, Allan B. Walsh, William E. Tuttle, Jr., Archibald C. Hart. Robert G. Bremner, Eugene F. Kinkead. Walter I. McCoy. Edward W. Townsend, John J. Eagan. James A. Hamill.

NEW MEXICO.—SENATORS: 1917, *Thomas B. Catron;* 1919, *Albert B. Fall.* REPRESENTATIVE (Democrat 1): At large. H. B. Fergusson.

NEW YORK.—SENATORS: 1915, *Elihu Root;* 1917, James A. O'Gorman. REPRESENTATIVES (Democrats 31, Republicans 11, Progressive 1): Lathrop Brown, Denis O'Leary, Frank E. Wilson, Harry H. Dale, James P. Maher. *William M. Calder,* John J. Fitzgerald, Daniel J. Griffin, James H. O'Brien, Herman A. Metz. Daniel J. Riordan, Henry M. Goldfogle. George W. Loft, Jefferson M. Levy. Michael F. Conry. Peter J. Dooling. John F. Carew, Thomas G. Patten. WALTER M. CHANDLER, Jacob A. Cantor, Henry George, Jr., Henry Bruckner, Joseph A. Goulden, Woodson R. Oglesby, Benjamin I. Taylor, *Edmund Platt,* George McClellan, Peter G. Ten Eyck, *James S. Parker, Samuel Wallin, E. A. Merritt, Jr., Luther W. Mott,* Charles A. Talcott, *George W. Fairchild,* John R. Clancy, *Sereno E. Payne,* Edwin S. Underhill, *Thomas B. Dunn, Henry G. Danforth,* Robert H. Gittins, Charles B. Smith, Daniel A. Driscoll, *Charles M. Hamilton.*

NORTH CAROLINA.—SENATORS: 1919, F. M. Simmons; 1915, Lee S. Overman. REPRESENTATIVES (Democrats 10): John H. Small, Claude Kitchin, John M. Faison, Edward W. Pou, Charles M. Stedman, Hannibal L. Godwin, Robert N. Page, Robert L. Doughton, Edwin Y. Webb, James M. Gudger, Jr.

NORTH DAKOTA.—SENATORS: 1917, *Porter J. McCumber;* 1915, *Asle J. Gronna.* REPRESENTATIVES (Republicans 3): *Henry T. Helgesen, George M. Young, Patrick D. Norton.*

OHIO.—SENATORS: 1915, *Theodore E. Burton;* 1917, Atlee Pomerene. REPRESENTATIVES (Democrats 19, Republicans 3): At large, Robert Crosser; Stanley E. Bowdle, Alfred G. Allen, Warren Gard, J. H. Goeke, Timothy T. Ansberry, *Simeon D. Fess,* James D. Post, *Frank B. Willis,* Isaac R. Sherwood, *Robert M. Switzer,* Horatio C. Claypool, Clement Brumbaugh, John A. Key, William G. Sharp, George White, W. B. Francis, William A. Ashbrook, John J. Whitacre, E. R. Bathrick, William Gordon, Robert J. Bulkley.

OKLAHOMA.—SENATORS: 1915, Thomas P. Gore; 1919, Robert L. Owen. REPRESENTATIVES (Democrats 6, Republicans 2): At large, William H. Murray, Joseph B. Thompson, Claude Weaver; *Bird McGuire, Dick T. Morgan,* James S. Davenport, Charles D. Carter, Scott Ferris.

OREGON.—SENATORS: 1915, George E. Chamberlain; 1919, Harry Lane. REPRESENTATIVES (Republicans 2, Progressive Republican 1): *Willis C. Hawley, Nicholas J. Sinnott, A. W. Lafferty.**

PENNSYLVANIA.—SENATORS: 1915, *Boies Penrose;* 1917, *George T. Oliver.* REPRESENTATIVES (Democrats 20, Republicans 18, Progressive Republican 1, Progressives 5): At large, FRED E. LEWIS, *John M. Morin,* ARTHUR R. RUPLEY, *Anderson H. Walters; William S. Vare, George S. Graham, J. Hampton Moore, George W. Edmonds,* Michael Donohoe, J. Washington Logue, *Thomas S. Butler,* Robert E. Difenderfer, *William W. Griest, John R. Farr,** John J. Casey, Robert E. Lee, John H. Rothermel, *W. D. B. Ainey, Edgar R. Kiess,* John V. Lesher, Frank L. Dershem, *Aaron S. Kreider,* Warren W. Bailey, Andrew R. Brodbeck, *Charles E. Patton, Abraham L. Keister,* Wooda N. Carr, HENRY W. TEMPLE, *Milton W. Shreve,* A. Mitchell Palmer, *Jonathan N. Langham,* WILLIS J. HULINGS, *Stephen G. Porter,* M. CLYDE KELLY, *James Francis Burke, Andrew J. Barchfeld.*

RHODE ISLAND.—SENATORS: 1917, *Henry F. Lippitt;* 1919, *LeBaron B. Colt.* REPRESENTATIVES (Democrats 2, Republican 1): George F. O'Shaunessy, Peter G. Gerry, *Ambrose Kennedy.*

SOUTH CAROLINA.—SENATORS: 1919, Benjamin R. Tillman; 1915, Ellison D. Smith. REPRESENTATIVES (Democrats 7): Richard S. Whaley, James F. Byrnes, Wyatt Aiken, Joseph T. Johnson, David E. Finley, J. Willard Ragsdale, Asbury F. Lever.

SOUTH DAKOTA.—SENATORS: 1915, *Coe I. Crawford;* 1919, *Thomas Sterling.* REPRESENTATIVES (Republicans 3): *Charles H. Dillon, Charles H. Burke, Eben W. Martin.*

TENNESSEE.—SENATORS: 1917, Luke Lea; 1919, John K. Shields. REPRESENTATIVES (Democrats 8, Republicans 2): *Sam R. Sells. Richard W. Austin,* John A. Moon, Cordell Hull, William C. Houston, Joseph W. Byrns, Lemuel P. Padgett, Thetus W. Sims, Finis J. Garrett, Kenneth D. McKellar.

TEXAS.—SENATORS: 1917, Charles A. Culberson; 1919, Morris Sheppard. REPRESENTATIVES (Democrats 18): At large, Daniel E. Garrett, Hatton W. Sumners; Horace W. Vaughan, Martin Dies, James Young, Sam Rayburn, Jack Beall, Rufus Hardy, A. W. Gregg, Joe H. Eagle, George F. Burgess, James P. Buchanan, Robert L. Henry, Oscar Callaway, John H. Stephens, James L. Slayden, John N. Garner. William R. Smith.

UTAH.—SENATORS: 1915, *Reed Smoot;* 1917, *George Sutherland.* REPRESENTATIVES (Republicans 2): At large. *Joseph Howell, Jacob Johnson.*

VERMONT.—SENATORS: 1915, *William P. Dillingham;* 1917, *Carroll S. Page.* REPRESENTATIVES (Republicans 2): *Frank L. Greene, Frank Plumley.*

VIRGINIA.—SENATORS: 1919, Thomas S. Martin; 1917, Claude A. Swanson. REPRESENTATIVES (Democrats 9, Republican 1): William A. Jones, E. E. Holland, Andrew J. Montague, Walter A. Watson, Edward W. Saunders, Carter Glass, James Hay, Charles C. Carlin. *C. Bascom Slemp,* Henry D. Flood.

WASHINGTON.—SENATORS: 1915, *Wesley L. Jones;* 1917, MILES POINDEXTER. REPRESENTATIVES (Republicans 3, Progressives 2): At large, James W. Bryan, J. A. Falconer; *William E. Humphrey, Albert Johnson, William L. La Follette.*

WEST VIRGINIA.—Senators: 1917, William E. Chilton; 1919, *Nathan Goff.* Representatives (Democrats 2, Republicans 4): At large, *Howard Sutherland;* M. M. Neely, William G. Brown, Jr., *Samuel B. Avis, Hunter H. Moss, Jr., James A. Hughes.*

WISCONSIN.—Senators: 1917, *Robert M. La Follette;* 1915, *Isaac Stephenson.* Representatives (Democrats 3, Republicans 8): *Henry A. Cooper,* Michael E. Burke, *John M. Nelson, William J. Cary, William H. Stafford,* Michael K. Reilly, *John J. Esch, Edward E. Browne,* Thomas F. Konop, *James A. Frear, Irvine L. Lenroot.*

WYOMING.—Senators: 1917, *Clarence D. Clark;* 1919, *Francis E. Warren.* Representative (Republican 1): At large, *Frank W. Mondell.*

ALASKA.—James Wickersham.

HAWAII.—*J. Kalanianaole.*

PHILIPPINES.—Manuel L. Quezon, Manuel Earnshaw.

PORTO RICO.—Luis Muñoz Rivera.

CLASSIFICATION

SENATE		HOUSE	
Democrats	51	Democrats	290
Republicans	43	Republicans	123
Progressive	1	Prog. Republicans	5
Vacancy	1	Progressives	15
		Independent	1
		Vacancy	1
Total	96	Total	435

UNITED STATES CENSUS. The task of completing the Thirteenth Decennial Census and publishing its results was practically at an end at the close of 1913, and the Census Bureau was then ready to turn its attention to the numerous "intercensal" lines of work. This bureau, since its organization on a permanent basis in 1902, has come to be beyond question the greatest statistical office in the world. The first aim and purpose of the bureau is to issue its report promptly, but it endeavors at the same time to make the statistics more valuable to the general public as well as to experts and specialists. Following is the most important work which the Census Bureau purposes to undertake during the next three or four years. The work is divided into three classes—general reports which are for certain years, annual reports, and a series of special reports for which no specified date is set. The general reports and the years for taking statistics are as follows: Electrical industries, 1912; health, debt, and taxation, 1913; agriculture, 1915; religious bodies, 1916; water transportation, 1916. The following reports are issued annually: Mortality statistics, birth statistics, financial statistics of cities, cotton statistics, and tobacco statistics. Following is a list of special reports to be issued by the bureau: Racial classes of population; population of metropolitan districts; Indian population; negro population; occupations of adults and children; occupations of women; occupations of children; occupations of the foreign-born; unemployment; fecundity of women; general statistics of cities; statistical atlas; plantation work in the Southern States; age of the farmer in relation to tenure and size of farm; stability of farm population; inmates of institutions, including prisoners and juvenile delinquents, paupers in almshouses, the insane and feeble-minded, the blind and deaf. The bureau will also bring out a series of monographs.

The Census Bureau has been criticised because of the delay in the publication of its reports. Those making such criticisms have not always taken into account the fact that, as a rule, each census report represents a compilation of statistics for the entire United States, and that time is required to make an actual canvass of the whole country and to publish the results. For example, in the census of manufactures, uniform reports must be secured from more than 270,000 establishments, and in the census of agriculture from more than 6,000,000 farms. In collecting statistics from manufacturers, farmers, electric light and power plants, electric railways, and other interests, it is necessary to allow a sufficient time to fill out the schedules so as not to interfere with the conduct of private business. In 1913 William J. Harris succeeded E. Dana Durand as director of the census.

Indebtedness of the States. A preliminary estimate of the indebtedness of the States of the Union on June 30, 1913, was issued by the Census Bureau. According to these investigations it appears that on June 30, 1913 (or the close of the fiscal year following within the twelve months preceding that date), the total State debt of the 48 States amounted to $419,157,000. Of this debt about $19,000,000 represented floating debt and nearly $400,000,000 represented funded debt. Of the funded debt about $359,000,000 were represented by bonds and $41,000,000 were special debt obligations to public trust funds. As an offsetting item against the total debt, the 48 States reported $77,032,000 in sinking fund assets, leaving the net debt $342,251,000.

Various practices were found in different States with reference to the assumption of debt by the States, and some difficulty arises when an attempt is made to compare the debt of the different States. The only two States which call for special mention in this connection are Arizona and Massachusetts. In Arizona the State has assumed responsibility for a very large amount of county and municipal debt. It has issued State obligations to cover the same, holding the counties and municipalities responsible in turn. It may be noted, however, that the Arizona debt even under these circumstances amounts to only eight-tenths of one per cent. of the total of the United States. Massachusetts, on the other hand, has assumed liability for debts of metropolitan districts which in most States would probably be classed as local, county, or municipal debt. The total debt, less sinking fund assets, for Massachusetts represents 23.2 per cent. of the debt for all States in the United States. Iowa, Wyoming, and Oregon each have less than one-tenth of one per cent. of the debt of all States, while in the case of Pennsylvania the sinking fund assets exceed the total debt. Vermont, Nebraska, and Kansas each have only one-tenth of one per cent. of the debt of the 48 States; in contrast, New York has 25 per cent. of the total for the 48 States.

A study of the *per capita* debt shows that in Iowa the debt, less sinking fund assets, amounts to only 3 cents *per capita,* and in Oregon 4 cents *per capita.* In Arkansas, Florida, Illinois, Indiana, Iowa, Kansas, Minnesota, Nebraska, New Jersey, Oregon, Pennsylvania, South Dakota, Texas, West Virginia, Wisconsin, and Wyoming the *per capita* debt, less sinking fund assets, is less than $1.00.

According to the census report of 1903, the indebtedness of the 48 States at that time amounted to $234,909,000, as compared with

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CORDELL HULL

Tennessee

FOUR LEADING MEMBERS OF THE UNITED STATES HOUSE OF REPRESENTATIVES, 1913

$342,251,000 in 1913. This is an increase in ten years of $107,342,000, or nearly 50 per cent. in contrast with an increase of slightly more than 20 per cent. in the population of the country. In 1890 the indebtedness of the States and Territories amounted to $211,210,000, while in 1880 it amounted to $274,746,000. Thus between 1880 and 1902 the *per capita* indebtedness for the 48 States combined gradually decreased, while during the last ten years there has been a very noticeable increase. In 1880 the *per capita* indebtedness amounted to $5.48; in 1890 it had been reduced to $3.37, due to the increase in population and decrease in debt; in 1902 it amounted to $2.99, due to the rapid increase in population and very slight increase in debt; in 1913 the *per capita* debt had gained an increase to $3.52, the increase being due to a very rapid increase in debt in contrast with a much slower increase in population.

UNITED STATES DEPARTMENT OF AGRICULTURE. With the change of administration on March 4, 1913, Hon. James Wilson of Iowa retired from the office of Secretary of Agriculture, which he had held for sixteen years, and was succeeded by Dr. David Franklin Houston of Missouri, chancellor of Washington University, St. Louis, and former president of the University of Texas and the Texas Agricultural and Mechanical College. The assistant secretary, Prof. Willet M. Hays, was succeeded by Dr. Beverly T. Galloway, former chief of the Bureau of Plant Industry; Prof. Willis L. Moore, chief of the Weather Bureau, by Prof. Charles F. Marvin; Victor H. Olmstead, chief of the Bureau of Statistics, by Leon M. Estabrook. Dr. William A. Taylor has been made chief of the Bureau of Plant Industry.

The Weather Bureau was somewhat reorganized with a view to having its work wholly in the interests of agriculture, commerce, and navigation. Increased attention was to be given to special crop and flood warnings. The Bureau of Statistics was to confine its work to estimating crop prospects and production and it was proposed to change its name to Bureau of Agricultural Forecasts. Important crop forecasts were to be telegraphed to the central weather station of each State and distributed thence promptly to papers in the State. Soil surveys were to be carried on largely in coöperation with the State agricultural colleges, experiment stations and departments. A decision of the Attorney-General resulted in placing meat and meat products under the pure food law. This necessitated new machinery and some reorganization of the Bureau of Chemistry, together with close coöperation with the Bureau of Animal Industry. The general effect was to give the Federal government control over meat and meat products in interstate commerce and in all stages of transit instead of restricting its jurisdiction to the Federal inspected meat establishments. A closer coöperation with the States in the enforcement of laws for the control of foods and drugs was also being arranged. The Secretary asked Congress for authority to submit a plan for the general reorganization of the department. The plan proposed would largely do away with the bureau organization on the basis of the divisions of agriculture and agricultural science, and divide the department "into five or six groups, such as a research service, a rural organization service, a State relations service, a weather service, a forest service, and a regulatory service."

The field of the department's operations was extended under the act of March 4, 1913, which gave it authority "to acquire and diffuse among the people of the United States useful information on subjects connected with the marketing and distribution of farm products." An office of markets was established under the direction of Charles J. Brand. This office was to study market conditions, methods of grading, packing, and shipping and the nature of the commercial transactions by means of which farm produce gets from the farm to the consumer. To provide for a broader study of questions relating to coöperation, rural credits, and other matters connected with the organization of rural communities, the department was coöperating with the general education board. A rural organization service with its headquarters at the department was established under the direction of Dr. T. N. Carver, professor of economics in Harvard University.

To make the department's work more helpful to the farm women, Congress was to be asked to give means and authority for extending the nutrition investigations to include studies of clothing and household equipment, and for experiments with labor-saving devices and methods, and for studying more completely the question of practical sanitation and hygienic protection for the farm family.

With a view to making the department's publications more effective means for the dissemination of useful information and securing a more economical expenditure of the limited printing fund, a new system of publications was adopted. This involved the drawing of a sharp line between scientific and popular publications and the abolition of the bureau series. Instead of 40 different series there were established only 4, as follows: (1) Departmental bulletins, containing popular and semi-technical results of investigations; (2) serial publications—the newly established *Journal of Agricultural Research* for original scientific papers and the *Experiment Station Record* for abstracts of the world's literature of agricultural science; (3) *Farmers' Bulletins*, reduced in size and "designed to give directions for doing things"; and (4) annual reports and other congressional publications, including the *Yearbook* and *Soil Surveys*. To give prompt and widespread distribution to information immediately useful, an office of information was established. This prepares popular statements in simple news form and gives them to the papers. This material is also issued in a weekly news letter which is sent to more than 50,000 crop correspondents and progressive farmers.

As the work of the department and the State agricultural colleges becomes broader and more complicated, the points of contact of these Federal and State agencies for the promotion of agriculture become more numerous. There is therefore need of more definite means for adjusting their relations from time to time. The department therefore entered into negotiations with the Association of American Agricultural Colleges and Experiment Stations and thus secured the formulation of a general policy governing their mutual relations. Permanent joint committees on general relations, projects and correlation of research, and the publication of research literature were constituted.

The appropriations for the department for the fiscal year ended June 30, 1913, amounted to $16,651,496 for ordinary expenses, in addition to which permanent annual appropriations, special appropriations, and balances from prior years amounting to $8,303,412 were available, making a total of $24,954,908. About $2,500,000 was deposited in the Treasury from the sale of timber on the national forests, grazing permits, condemned property, etc. Fines aggregating $23,463 were imposed in 596 cases for violation of the food and drugs act; $27,764 in 436 cases of trespass on the national forests; $61,695 for violations of the 28-hour law. The national forests were rapidly becoming self-supporting, many of them already returning more than the operating cost. The department was coöperating with the Postmaster-General in the improvement of selected mail-route roads for which Congress appropriated $500,000, conditioned on the raising of double that amount by the States in which such roads are located. About three-fifths of the department's appropriation, or about $15,000,000, was expended for regulatory work, and about $9,000,000 for scientific research, experiments, and demonstrations directly affecting the farmer. The appropriations for ordinary expenses for the fiscal year ending June 30, 1914, amount to $17,986,945.

There were 14,478 employes in the department on July 1, 1913, of whom 2924 were employed in Washington. Of the entire force, 1812 were engaged in scientific investigations and research, 1323 in demonstration and extension work, 687 in administrative and supervisory work, 6021 in regulatory and related work, and 4635 were clerks and employes below the grade of clerk.

UNITED STATES MILITARY ACADEMY. During the months of June, July, and August, 1913, 199 candidates were admitted as cadets of the academy, bringing the total strength of the corps on September 1 up to 613. There were no noteworthy changes in the faculty during the year. The superintendent in 1913 was Colonel Clarence Page Townsley, of the Coast Artillery Corps. The total number of graduates from 1802 to 1913, inclusive, was 5205.

UNITED STATES NATIONAL MUSEUM. The total number of specimens acquired during the fiscal year was approximately 302,132, of which 26,999 related to several subjects covered by the department of anthropology; 113,509 were zoölogical; 140,015 botanical; 5569 biological; and 14,716 paleontological. The others were paintings for the National Gallery of Art, textiles and useful plant products for the department of arts and industries. The additions in ethnology came chiefly from the Philippine Islands and other parts of the Far East, from South America, and from the middle and western United States. For some of its most important acquisitions to the department of biology the museum was indebted to several expeditions to distant regions, conducted at private expense. The most extensive of these was undertaken by Mr. Childs Frick, who was accompanied by Dr. E. A. Mearns and others. This expedition visited Abyssinia and British East Africa. The birds obtained, numbering over 5000, were deposited in the museum. The permanent additions to the Gallery of Art consisted of twelve paintings, ten of which were gifts and two bequests. The museum forms a part of the Smithsonian Institution. The assistant secretary in charge is Richard Rathbun.

UNITED STATES NAVAL ACADEMY. The total number of midshipmen at the academy at the beginning of the academic year 1913-14 was 861, divided as follows: First-class, 156; second-class, 189; third-class, 211; fourth-class, 305. There were no notable changes in the faculty during the year and no events of unusual interest. The superintendent was Captain John H. Gibbons, and the commandant of midshipmen, G. W. Logan.

UNITED STATES STEEL CORPORATION. See WELFARE WORK under section so entitled.

UNIVERSALISTS. The most distinctive tenet of this denomination is the final salvation of all men. The estimated number of communicants in 1913 was 51,716, with 709 churches and 702 ministers. The Sunday schools have a membership of about 50,000, and the value of the church property is about $12,800,000. The denomination carries on foreign missionary work in Japan and China, and sustains domestic missions in 15 churches. Its institutions of higher education include Tufts College, at Medford, Mass.; St. Lawrence University, at Canton, N. Y.; Buchtel College, at Akron, O.; and Lombard College, at Galesburg, Ill. The general conference of the denomination was held at Chicago in October, 1913.

UNIVERSE, THEORIES OF. See ASTRONOMY.

UNIVERSITIES AND COLLEGES, AMERICAN. ATTENDANCE. There were in the 586 institutions reporting to the Bureau of Education, 1911-12, 186,796 collegiate and 11,657 resident graduate students. About 27 per cent. of the collegiate and 32 per cent. of the graduate students are women; 71,851 of the collegiate and 3551 of the graduate students were in the 92 public institutions, the others being in 504 private universities, colleges, and technological schools; 18,922 degrees were conferred upon men and 10,727 upon women. These included 446 Ph. D. degrees for men and 63 for women. The attendance at summer schools shows a remarkable increase. In 1911 there were 477 summer schools enrolling 38,140 men and 80,167 women, a total of 118,307. In 1912 there were 569 schools, of which 217 gave courses accredited for degrees. The attendance in all the summer schools was 46,657 men and 95,560 women, making a total of 142,217.

CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING. The seventh annual report of the president and treasurer of the Carnegie Foundation covers the year ended September 30, 1912. It states that "the endowment in the hands of the trustees at that time amounted to approximately $14,000,000, and the income for the year amounted to $676,486, of which $634,497 was expended. From its first pension payment in June, 1906, to the end of the fiscal year September 30, 1912, the foundation has distributed $2,077,814 in retiring allowances to professors and $238,590 in widows' pensions—a total of $2,316,404. In all, 429 retiring allowances and 90 widows' pensions have been granted, of which 98 have terminated through death and 23 at the expiration of temporary grants, leaving 315 retiring allowances and 83 widows' pensions in force at the end of the year." The report includes a careful statement of the whole question of pensions for teachers, for government employes, and for industrial employes. It points out the fact that the bills which have been introduced in the various legislatures almost invariably violate fundamental actuarial conditions, and have been framed without study of the essential conditions which must be fulfilled by any adequate pension system. President Pritchett urges a contributory system of pension.

The report called attention to the number of sham universities and showed that there are many of these which are conducted as commercial enterprises without endowment or facilities. These are, however, chartered as educational institutions and so enabled to appeal to the credulity of ignorant students throughout this and other countries under high-sounding names and under the shelter of charters granted by the general government. It calls attention to the bill then before Congress that aimed to correct this situation.

The foundation has established a division of educational inquiry. This was made possible by a gift of $1,250,000 from Mr. Andrew Carnegie. The purpose of the division is set forth in the following quotation from Mr. Carnegie's letter to the trustees of the foundation. "It shall be the function of the division of educational inquiry to conduct studies and to make investigations concerning universities, colleges, professional schools, and systems of education generally, to investigate problems of education affecting the improvement of educational methods, the advancement of teaching, or betterment of educational standards, and in general to investigate and to report upon those educational agencies which undertake to deal with the intellectual, social, and moral progress of mankind and to publish such results as the trustees may consider of value."

The first work undertaken by this division was the investigation of education in Vermont on the invitation of the Vermont educational commission.

COÖRDINATION OF STATE INSTITUTIONS. Attention has been directed more and more to the wasteful duplication of work in colleges and universities, particularly as it affects the specialized and technical work in these institutions. The problem of coördinating the work has been approached from different directions. In Montana an "Association for the Creation of a Greater University of Montana" was organized. This body went before the State board of education with pleas for the consolidation of the State university, the agricultural college, the normal school, and the school of mines. The State board adopted a resolution recommending to the legislature that the consolidation be carried out. Bills to this effect were introduced, but failed to be enacted. The Iowa State board of education made a radical redistribution of work among the three institutions under its control. This created a great deal of dissatisfaction, not alone within the institutions but throughout the State. It is now generally understood that the new plans have been altered so as to return to the institutions much of the work that was taken from them. Vermont has undertaken to settle the difficulty by a legislative commission "which shall report at the earliest possible date on the several rights, duties, and obligations of the University of Vermont and State Agricultural College, Middlebury College, and Norwich University, with such recommendations as will prevent unnecessary duplication and consequent financial waste." Although the three institutions mentioned are subsidized by the State, they are virtually independent institutions, for the State control is limited to appointing half cf the board of trustees for the University of Vermont, and also a visiting board for Norwich University. The report of the commission briefly describes the condition as follows: "Beginning thirty years ago with a small appropriation to a single institution, first one and then another of these colleges has successfully applied to the legislature for a share in the State's revenue. The increase of the appropriation by the friends of one has been a signal for an increase in the appropriation for the others, and by a perfectly natural process the three institutions have been led into a rivalry alike harmful to them, to the State, and to education. The struggle for the college appropriations is more or less intimately connected with all other legislation. Many abuses have crept in to help out the plea for such appropriations or to justify it. The subsidizing of students by scholarships, some of them to be conferred by members of the Senate, is particularly to be regretted. Such subsidies to students are nearly always unwise, and if given at all, they ought to be open to students on some fair system of competition, and should entitle the holder to go not to a particular institution, but to any institution that he may choose. The subsidizing of students to go to college is at best of doubtful wisdom. The opportunities for education in this country are so numerous that the ambitious student with energy and courage can find his way through college by his own efforts. Whatever assistance is given should be under conditions carefully planned to safeguard the integrity and self-respect of the student. Scholarship aid should be a loan to be repaid, not a free gift. Any system of scholarships that selects a few beneficiaries and demands no return from them results inevitably in tempting into college youths who ought to find their life training elsewhere, a result alike harmful to the student and to the college. Such a system is a very different thing from the proper provision of free education for all of the people." It recommends that "The State Agricultural College receive a larger proportion of the generous annual appropriation of the State from the Federal government and be developed along lines calculated to make a fruitful connection between the Agricultural College and the industries of farming, dairying, gardening, stock and poultry raising, and fruit culture," and "That subsidies to higher education cease, the colleges being given a reasonable time in which to rearrange their budgets."

GIFTS AND ENDOWMENTS. The most important gifts of 1913 were connected with the endowments of medical schools. The largest of these was an amount of more than $4,000,000 given to Cornell University for the medical school endowment by Colonel Oliver Hazard Paine. The general education board gave the Johns Hopkins Medical School an endowment of $1,400,000, to be known as the William H. Welch fund in honor of Dr. Welch, who was so largely responsible for the organization and development of the school. The secretary of the general education board states the object of the fund as follows: "Since the opening of the Johns Hopkins Medical School in the early nineties, it has been universally conceded that the teaching of the underlying medical sciences, namely, anatomy, physiology, pathology, and pharmacology, must be placed in the hands of men devoting their entire time to teaching and research in their subjects. As the clinical branches are more extensive and more complicated than the above-mentioned underlying sciences, the medical faculty of the Johns Hopkins University has become convinced that it is fully as important that the clinical subjects should be cultivated and taught by men freed from the distraction involved in earning their living through private practice. The trustees of the Johns Hopkins University and the Johns Hopkins Hospital and the medical faculty of the Johns Hopkins University united in requesting of the general education board funds that would enable them to reorganize the departments of medicine, surgery, and pediatrics so that the professors and their associates in the clinic and the laboratories should be able to devote their entire time to their work. In making the gift the general education board has placed absolutely no restriction upon the freedom of these men. They will henceforth be in a position to do any service that either science or humanity demands. They are free to see and treat anyone, whether inside or outside the hospital, but they will accept no personal fee for any such service. It is not expected that this radical innovation in medical teaching will deprive the Johns Hopkins Medical School of such advantages as are still to be gained from the services of other men who are practitioners of medicine and surgery. In the conduct of the dispensary, in the teaching of students, and in the cultivation of the specialties men simultaneously engaged in practice will to some extent continue to be utilized." The University of California received a gift of $1,000,000 from Mrs. George William Hooper of San Francisco for the purpose of establishing an institute of medical research. Vanderbilt University received a pledge of $1,000,000 from Mr. Andrew Carnegie for the development of its medical department.

Among the other important gifts are the following: $200,000 raised by the Council of Hebrew Congregations for the Hebrew Union College; completion of $1,000,000 endowment for Smith College; $500,000 fund for Mt. Holyoke; $1,000,000 endowment for Goucher College; $475,000 from the estate of the late Dr. Francis Bacon for Yale University; $300,000 given by Mr. LaVerne Noyes to the University of Chicago for a social centre and gymnasium for women; $1,000,000 announced by the Washington and Lee University from the estate of Robert P. Doremus; $1,000,000 endowment for Trinity College, North Carolina.

The aggregate of gifts and bequests, excluding grants by the United States, different States, and municipalities, reported for the year 1911-12 was $24,783,090, an increase of $1,819,945 over the amount reported for the preceding year. Fifty-four institutions reported gifts above $100,000.

NEW INSTITUTIONS AND DEPARTMENTS. The Graduate School of Princeton University was opened to students September 24, 1913. This school has received a great deal of attention because it is unique among the institutions of America. Its purpose, as stated by its dean, Dr. Andrew F. West, is as follows: "To create in America a valuable institution which does not yet exist, a residential college devoted solely to the higher liberal studies—a home of science and philosophy, of literature and history. Three elements compose the graduate college. First and foremost is a body of thoroughly first-rate professors, to be added to others now in the faculty — interesting men, scholars of high power, eminent in their subjects, and able to awaken young men. The second element is a company of students of high ability—not a big crowd, but a moderate number—living as a community in the buildings of the graduate college. . . . The important thing is that they shall make a student community of high type, sufficient in number to develop a society where every man may know his fellows, find the variety he needs, and not be lost in a crowd. . . . The third element is the buildings, the material home wherein this community shall find the realization of its desires. . . . Whatever may be true of other subjects, liberal studies at least take on new charm amid old associations, and find a natural home in the peace and sylvan beauty of rural life. It is intended to make the buildings beautiful. For this purpose the so-called collegiate Gothic has been chosen—not "modified" Gothic, nor hotel Gothic, but the exquisite perpendicular type so lovely in the few remaining examples in English colleges."

The school of commerce connected with New York University has established what is claimed to be the first university department for teaching advertising. The work includes six full-year courses of one night a week, each especially in the field of advertising, as well as a large number of allied courses in economics, salesmanship, correspondence, and trade conditions. The University of California has established a division of rural institutions. This department will "study and aid all the rural forces which have for their aim the making of life in the open country successful and satisfactory." Among the special topics to be considered are the following: Farm credits, irrigation and drainage institutions, coöperation, and all varied political, economic, educational, social, and religious institutions which affect rural life. The Harvard Graduate School of Business has instituted a course for the training of men to be secretaries of chambers of commerce and similar organizations. The work includes that of several older courses in the school and special training in secretarial work, supplemented by practical experience in the Boston Chamber of Commerce. The legislature of Pennsylvania has given to the University of Pennsylvania $40,000 for the development of courses in education. The university has reorganized and gradually enlarged this department. A graduate school of education has been established at Bryn Mawr College. The legislature of New York State has enacted laws that will eventually give scholarships amounting to $100 a year to three thousand students. The students are left to choose their own institution. In case the tuition fees are more than $100 the State

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JOHN H. FINLEY
Commissioner of Education of the State of New York

FOUR EDUCATORS PROMINENT IN 1913

fund may be applied toward the payment of the fees. The colleges must be within the State and receive the approval of the department of education. Arrangements were made whereby the entire second-year class of advanced naval engineers were sent to Columbia University for the year 1913-14. A new institution of collegiate grade has been established at New London, Conn. It is a largely endowed institution that proposes to deal more directly with the training of women for the services of the home than does any institution now existing in our country. The president, Dr. Frederick H. Sykes, is now engaged in selecting a faculty and providing for the erection of suitable buildings.

New Presidents. Among the institutions that elected new presidents during 1913 were the following: Goucher College, Dr. William W. Guth; Hobart College, Dr. Lyman P. Powell; Wells College, Dr. Kerr D. Macmillan; Leland Stanford Jr. University, Dr. John Casper Branner; Miami University, Dr. Raymond M. Hughes; Washington and Lee University, Dr. Henry Louis Smith; University of Colorado, Dr. Livingston Farrand. The newly formed Connecticut College for Women at New London elected Dr. Frederick H. Sykes, formerly director of the school of practical arts, Teachers' College, Columbia University, as its first president.

The presidents of three of the larger institutions resigned during the year: Dr. David Starr Jordan of Leland Stanford Jr. University resigned the presidency and accepted the office of chancellor which was created for him. President James M. Taylor resigned from Vassar College after twenty-seven years of service. Dr. John H. Finley resigned the presidency of the College of the City of New York to accept the position of commissioner of education for New York State.

Resources. The 596 universities, colleges, and technological schools reporting to the Bureau of Education had in 1911-12 an income of $89,835,787, exclusive of endowment. More than a fourth of this amount was received by the following eight institutions: Columbia University, Cornell University, Harvard University, Yale University, University of California, University of Chicago, University of Minnesota, and University of Wisconsin. On the other hand, each of eighty-three other institutions had incomes of less than $20,000. The endowments of the institutions were increased by $14,678,308, and now amount to a total of $357,048,919. The income from these funds is sufficient to meet about one-sixth of the current expenses of the institutions. More than one-third of the total amount of endowment reported is in six institutions, namely: Columbia University, $29,348,920; Leland Stanford Jr. University, $27,000,000; Harvard, $25,757,062; University of Chicago, $17,226,573; Yale, $13,824,078; and Cornell University, $9,523,405. One hundred and fifty of the institutions other than those supported by the State or cities had no endowment whatever. The States and cities contributed $24,144,353 toward the income of the institutions, and $28,792,318 was derived from student fees. A total of $3,729,952 was received from private benefactions for current expenses. The presidents of Columbia and Princeton universities each made a plea for increased endowment a part of their annual report. Many institutions were considering the advisability of increasing their tuition fees. At its regular November meeting the Yale corporation increased the tuition charges in two undergraduate departments and in the graduate school. Beginning in 1914 the normal tuition charge in the college will be $160, instead of $155; in the scientific school the charge will be raised from $150 to $180, and where required incidentals are included, from $171 to about $200.

UNIVERSITIES AND COLLEGES, English. In connection with the universities and university colleges, not including Oxford and Cambridge, a notable feature has been that a federated scheme of superannuation for professors and other members of their staffs has been introduced with the advice of the board of education. The insured will have a choice of types of benefits and a choice of insurance companies, with a number of which contracts have been undertaken. The scheme is compulsory on those receiving salaries over £300 a year, and optional for those receiving from £200 to £300 a year, while those receiving less than £200 may insure with the consent of the institution to which they belong. The scheme is contributory and deductions of not more than 5 per cent. may be made from salary, the institution contributing a sum to bring the amount up to 10 per cent. of the salary.

The Royal Commission on the University of London has issued its reports and recommendations (Cd. 6717). The aim of the report is to establish in London a real teaching university, located in a distinct university quarter, as distinguished from a mere examining body. The constituent colleges to be admitted are to be under the financial and educational control of the university acting through a court as the legislative body and the Senate as the executive body. The faculty is to be the basis of the organization; the faculties will include arts, science, technology, economics, medicine, law, and theology. The teaching appointments will be made by the university and the examination for degrees will be common to students in all departments of the constituent bodies. The external examinations are for the present to be continued but only in the United Kingdom. Admission to the university is to be open to students over seventeen on presenting a certificate from a secondary school, and the university is to abandon entrance examinations except for external students. The first constituent colleges will be the Imperial College of Science and Technology, University College, King's College, Bedford College, and London School of Economics. The London Day Training College and King's College for Women are to be recognized for certain departments, and Birbeck College and East London College will also be admitted on complying with certain conditions. The two last institutions are attended largely by evening students, who will thus be able to qualify for degrees. Parliament is to be asked to pass an act embodying the recommendations of the commission.

In the universities and colleges receiving the board of education grant there were in 1912-13 9204 students; the grant amounted to £218,808. In addition there were at Oxford and Cambridge some 8000 students.

UNIVERSITY OF LONDON. See Universities and Colleges, English.

UPPER SENEGAL AND NIGER. A colony of French West Africa (q.v.). The military territory of the Niger was separated from the colony by order of the governor-general for French West Africa dated June 22, 1910, and reorganized under a commandant; and by the same order Timbuktu was reorganized under a lieutenant-colonel whose duty is to centralize the affairs of this region and who is responsible to the lieutenant-governor of Upper Senegal and Niger. The colony has direct communication with the coast by way of the Senegal, which is navigable as far as Kayes at high water. About a million and a half of the population are Mussulmans (Moors, Tonaregs, Foulbés, etc.); the remainder are mixed fetishistic tribes of low type for the most part. Cotton textiles are manufactured by natives, and practically all agricultural and domestic implements are locally forged. The soil yields cotton, rice, millet, peanuts, manioc, etc., as well as rubber, gums, and other forest products. Grazing is generally followed. In 1911 the imports by the Senegal were valued at 17,000,000 francs, and the exports at 4,500,000; by way of the Sahel and the Sahara, 1,500,000 (chiefly salt) and 500,000 (grains, textiles, etc.); by southern routes (Senegal, Guinea, Ivory Coast, and Gold Coast), 4,000,000 and 8,000,000. The Kayes-Koulikoro Railway (553 kilometers) reaches the Niger at Bamako. A branch (12 kilometers) connects Kayes with Médine. The Ambidédi-Kayes section (44 kilometers) of the Thiès-Kayes line is in regular operation. Bamako, the capital, had (1911) 7052 inhabitants; Ouagougou 19,332, Kayes 8952, Ségou 8405, Timbuktu 6552. The lieutenant-governor in 1913 was J. Clozel.

URANIUM. See CHEMISTRY, INDUSTRIAL; and RADIUM, URANIUM, AND VANADIUM ORES.

URBAITE. See MINERALOGY.

URUGUAY. A republic of South America, on the Atlantic coast between Brazil and Argentina. The capital is Montevideo.

AREA AND POPULATION. The republic consists of 19 departments, whose aggregate area is stated at 186,925 square kilometers (72,172 square miles). A recent planimetric calculation places the area at 178,700 square kilometers (68,996 square miles). The census of October 12, 1908, returned a population of 1,042,686. The department of Montevideo, with only 664 square kilometers (256 square miles) had 309,231 inhabitants. Of the total, 861,464 (82.52 per cent.) were natives, and 180,722 (17.38 per cent.) were foreign-born. The foreigners included 62,357 Italians, 54,885 Spaniards, 27,789 Brazilians, 18,600 Argentines, and 8341 French. The population in 1912 was estimated at 1,225,914; Montevideo department, 348,488 (at end of 1912, 352,487.) The larger cities and towns, with population in 1908, are: Montevideo, 291,465; Paysandú, 20,953; Salto, 19,788; Mercedes, 15,667; Minas, 13,345; Melo, 12,355; San José, 12,297; Rocha, 12,200. Movement of the population in 1911 and 1912, respectively: Marriages, 6967 and 7541; births (including stillbirths), 37,530 and 39,171; deaths (including stillbirths), 16,552 and 16,745; stillbirths, 1367 and 1330; excess of births, 20,978 and 22,426; arrivals, 195,389 and 248,085; departures, 170,922 and 222,157. The immigration of farm laborers is encouraged. There were reported for 1911 934 public primary schools, with an enrollment of 82,441 pupils. There are a number of secondary and special schools. The university at Montevideo had 112 teachers, 530 students, and 661 students in the secondary departments.

INDUSTRIES AND COMMERCE. Uruguay is notably a grazing country. The livestock census of 1908 returned 8,192,602 cattle, 26,286,296 sheep, 556,307 horses, 17,671 mules, 4428 asses, 180,099 swine, and 19,951 goats. Only a small proportion of the country is under cultivation. There were reported for the year 1911-12 323,244 hectares under wheat, yielding 2,383,230 quintals; corn, 239,118 ha., 2,022,830 qs.; flax, 57,698 ha., 223,167 qs. (of flaxseed); oats, 34,656 ha., 264,936 qs. Mining and manufacturing are little developed.

The special trade has been valued as follows, in thousands of pesos (gold):

	1907	1908	1909	1910	1911	1912
Imports..	37,471	38,730	37,157	40,814	44,798	49,380
Exports..	34,912	40,296	46,150	40,801	44,536	48,801

Classified exports in 1912: Livestock products: 44,039,624 pesos; agricultural products, 2,064,704; mining products, 2,242,995; hunting and fishery products, 224,576; provisions for ships, 228,845. In 1911 imports from the United Kingdom were valued at 12,162,000 pesos; Germany, 7,591,000; United States, 5,453,000; Argentina, 4,013,000; France, 3,800,000. Exports to France in 1912, 8,643,000 pesos; Germany, 7,602,000; Belgium, 7,596,000; Argentina, 7,068,000; United Kingdom, 6,294,000. In 1912 there entered at the ports 13,139 vessels, of 10,423,738 tons (steam 6665, of 9,181,988 tons), and cleared 12,917 vessels, of 10,278,332 tons (steam 6477, of 9,053,946 tons). Merchant marine in 1912: 42 steamers, of 29,562 tons net, and 165 sail, of 27,798 tons net.

COMMUNICATIONS. The length of railway reported in operation at the end of 1911 was 2512 kilometers (1561 miles); under construction, 610 kilometers (379 miles). Railway construction was continued during 1912 and 1913, but exact figures for the new lines are not available. At the end of the year it was reported that the government of the republic had signed a contract with the Uruguay Railway, an American corporation, that was a subsidiary of the European Farquhar syndicate, for the construction of a line 250 miles in length from Montevideo to Carmen in the department of Durazno and thence to a point where connection will be made with the Midland Railway. In addition a short line was to be constructed to connect the east coast of Uruguay Railway at Olmos with the new line to Carmen, and also a line from San Carlos to Rocha, fifty miles in length. The government was to pay the cost price of construction, plus a profit of ten per cent. to the contractor, paying in bonds bearing 5 per cent. interest, while the railway corporation agreed to construct not less than thirty-one miles of track every nine months, building the line between San Carlos and Rocha first. The Farquhar syndicate, in addition to controlling the Uruguay Railway, controlled the Midland system as far south as Santa Isabel in the department of Durazno and the east coast of Uruguay railway from Olmos to San Carlos. The new line provided for would give the Midland system an independent connection with Montevideo and especially a route along the coast from Montevideo to Paloma. The state, as a part of the contract, agreed to buy from the Uruguay Railway the line under construction from Rocha to Paloma and the concession for a line from Rocha to Treinta y Tres was cancelled. The new contract also was to give preference to the company for the operation of the railways when they were completed. The Fray-Bonitos-Algorta Railway was under construction in 1913. Telegraphs (1912): 8600 kilometers of line, with 57 offices; wireless stations, 4, and 7 on board ship. Post offices (1912), 1129.

FINANCE. The standard of value is gold; the monetary unit is the peso, par value $1.03424. For the fiscal year 1913 estimated revenue and expenditure were 35,142,360 and 35,133,812 pesos, respectively; for the fiscal year 1914 (according to the budget submitted to the Congress), 36,597,360 and 36,516,877. For the latter year estimated revenue included customs, 17,600,000 pesos; taxes on real estate, 4,330,000; licenses, 1,840,000; taxes on alcoholic liquors, tobacco, and matches, 1,757,000; earnings of the Bank of the Republic, 1,465,000; stamps, etc., 1,035,000; inheritance tax, 1,000,000. The larger estimated disbursements for the fiscal year 1914: Public debt, 18,360,042 pesos; war and marine, 4,695,162; interior, 3,371,621; public instruction, 3,193,132; finance, 2,524,850; industry, 1,686,879. Public debt December 31, 1912: Foreign consolidated, 120,564,512 pesos; international, 2,294,000; internal, 10,437,073; total, 133,295,145. Debt charges in 1912, 7,728,928 pesos.

ARMY. A small regular army is maintained. Liability to service is universal, but sufficient volunteers in the main can be found to recruit the various organizations and the regular army proper is made up largely of Indians and negroes. There is a national guard composed of young men who are supposed to assemble for drill on thirteen Sundays in the year. The regular army numbered 10,345 officers and men on a peace footing, while in addition there are a police force of 6000, a national guard, or militia, of about 45,000, local troops amounting to 25,000, and a territorial guard of 15,000, making in all a force of 100,000 men with 20 field guns and 115 machine guns.

NAVY. The navy includes one armored cruiser, of 2200 tons (the *Montevideo,* built in 1887); one torpedo cruiser, of 1500 tons (the *Uruguay,* 1910); one gunboat, of 300 tons (*18 de Julio*), one school-ship, of 300 tons; and three dispatch boats.

GOVERNMENT. The legislative power rests with the General Assembly, or Congress, consisting of the Senate (19 members, elected for six years by indirect vote), and the House of Representatives (90 members, elected for three years by direct vote). The president is elected for four years by the General Assembly and is not eligible for a consecutive term. He is assisted by a responsible ministry of seven members. The president for the term ending March 1, 1915, is José Batlle y Ordóñez. He was president in 1903-07.

HISTORY. Several new cabinet officials were appointed during the year: Pedro Cosio, minister of finance; Dr. José Ramasso, minister of industries; Dr. Julien de la Hoz, minister of justice and education; and Dr. Barbaroux, minister of foreign affairs. A progressive policy was pursued by the ministry. In his message to Congress President Ordóñez elaborated a project for the organization of popular credit on a basis of coöperation and reciprocity; as soon as the paid-up capital of the Bank of the Republic had reached $20,000,000, there was to be set aside $500,000 for the development of coöperative credit, for the benefit of artisans, tradesmen, and small employers. Another enlightened measure was the eight-hour-day bill passed by the House of Representatives on June 1. At the same time there was under consideration a bill to prohibit the employment of children under fourteen years of age, to limit the working hours to four a day for those from 14 to 16 years old, and to six for those from 16 to 19, and to prohibit night work for children under 16 and for women. In order the more effectively to meet the needs of the country, the minister of finance ordered the labor office to compile statistics on the cost of living, the wages of the working classes, the supply of and demand for labor. Moreover, the government was carrying out a comprehensive programme of economic betterment. It encouraged afforestation, and colonization, exempted agricultural implements and seeds from customs duties, created an office of agricultural defense, engaged expert advisers, appointed Dr. Muñoz Ximenez to study American and European methods of meat-packing, and entertained at Montevideo the International Conference of Agricultural Defense, May 2-10. The new Montevideo Port Railway, opened May 16, was constructed as a result of the efforts of the minister of public works. Towards the improvement of Coronilla harbor $350,000 was appropriated, this sum being destined to defray preliminary expenses.

The promotion of the country's welfare had a negative as well as a positive side. Unproductive expenditure on jewelry was penalized by a 5 per cent. *ad valorem* duty. In December the Chamber of Deputies approved in principle an anti-alcoholic bill. Deputy Toscano, in a speech for the adoption of the bill, made the astonishing statement that there are now in Montevideo 1900 saloons, and 1369 in the provinces, making a total of 3269, or about one to every 300 inhabitants.

An interesting movement for constitutional revision was on foot in the early part of the year. It was proposed to vest legislative and appointive power in a committee of nine, elected in rotation, each for nine years. In place of the president, there would be a chairman elected by the committee and subject to recall.

A foreign loan was contemplated in September, in accordance with recommendations made by the president. It was planned to borrow 25,000,000 pesos, to be used for public works and the consolidation of the debt. Difficulty was experienced in placing the loan, but in December it was reported that $10,000,000 had been taken by an Anglo-French syndicate, and that the Uruguayan government intended to create a tobacco monopoly. The budget drawn up for 1913-14 placed the revenues at 36,597,360 pesos, and the expenditures at 36,516,876.98 pesos. As an act of neighborly courtesy, Uruguay sent a delegation to join in the patriotic festivities of Paraguay, May 14. Juan Pedro Castro was nominated to The Hague Permanent Court.

It was reported in December that the parliamentary elections of November 30 had resulted in a majority for the *Colorado* Party.

UTAH. **Population.** The population of the State in 1910 was 373,351. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 404,735.

Agriculture. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	10,000	340,000	$ 238,000
	1912	9,000	270,000	202,000
Wheat	1913	265,000	6,420,000	4,687,000
	1912	236,000	6,059,000	4,544,000
Oats	1913	90,000	4,140,000	1,656,000
	1912	91,000	4,222,000	2,069,000
Rye	1913	12,000	204,000	122,000
	1912	6,000	90,000	61,000
Potatoes	1913	20,000	3,600,000	2,088,000
	1912	19,000	3,515,000	1,722,000
Hay	1913	390,000	*a* 909,000	8,262,000
	1912	368,000	1,023,000	8,184,000

a Tons.

Mineral Production. The mines of the State in 1913 produced over 10,250,000 tons of ore, with recoverable gold, silver, copper, zinc, and lead at about $43,000,000, according to the estimates of the United States Geological Survey. There was a decrease in the yield of copper due largely to the closing of the Mercur gold mine. The value of the gold produced was about $3,581,900, which was about 16 per cent. less that of 1912. The silver yield in 1913 was about 12,500,000 ounces, or about 9 per cent. less than in 1912. The copper mine output, which reached 158,200,000 in 1913, surpassed the previous yearly records—an increase of about 15 per cent. over the production of 1912. The lead output showed an increase of nearly 12 per cent. in 1913, which made a total of 156,670,000 pounds, compared with 140,311,035 in 1912. The production of zinc ore remained about the same as in 1912, yielding over 17,000,000 pounds of recoverable spelter. The total value of the mineral products of the State in 1912 was $51,000,942, compared with $43,774,331 in 1911.

The gold production of the State in 1912 was $4,265,851, a decrease of $431,147 over the production in 1911. The largest production was from Juab County, which yielded $1,804,842 in 1912, against $1,500,359 in 1911. The Bingham district in Salt Lake County, with its great output of copper ores, ranked second in the yield of gold in 1912 with the production of $1,795,532. Nearly all the output of the State is from the deep mines.

The silver output of the State in 1912 was 13,835,503 fine ounces, compared with 12,473,787 in 1911.

Utah is an important producer of copper (q.v.). The production in 1912 was 132,150,052 pounds of blister copper, compared with 142,340,215 pounds in 1911. The decrease was due to labor troubles in the Bingham Camp, which resulted in the closing of the mines for some time during the latter part of the year. The total recorded output of the State to the close of 1912 is 929,194,840 pounds, and in the production for 1912 Utah ranks fourth among the copper producing States. The three districts in which nearly all the copper is produced are the Bingham district, the Tintic district, and the Frisco district.

The coal production in 1913 is estimated by the United States Geological Survey about 5 per cent. more than that of 1912, in which year it was 3,116,149 short tons, valued at $5,146,451. This was an increase over the production in 1912 of 502,974 short tons, or 20 per cent. The increased production in 1912 is attributed to activity in metal mining in related industries, and to general prosperous conditions throughout the State. The total number of men employed in the coal mines in 1912 was 3328, compared with 3060 in 1911. The average working time increased from 236 days to 285. There were no strikes or other labor troubles in 1912. The fatal accidents in the coal mines of Utah in 1912 numbered 18, an increase of 4 over 1911. Of the 18 fatalities, 16 occurred underground and two on the surface.

Transportation. The railway mileage of the State on January 1, 1913, was 2055.

Education. The latest report of the superintendent of public instruction is for the biennial period ending June 30, 1912. The school population of 1912 was 111,333. The average daily attendance was 92,129. There were 691 schools, with 702 male and 1935 female teachers. The average monthly salary of male teachers was $82.98, and of females $65.02. The total amount expended in 1912 was $3,994,767.

Finance. The latest report of the treasurer is for the fiscal year 1912. The total receipts for the fiscal year amounted to $3,668,004. There was a balance on hand at the beginning of the year of $1,871,595. The disbursements amounted to $3,877,898, leaving a balance on hand on November 30, 1912, of $1,661,801. The chief receipts are from taxation, and the chief expenditures are for education, State officers, and State institutions.

Charities and Corrections. The State has no department of charities and corrections, and, previous to 1912, there was one organized charitable society in Salt Lake City. It was supported by private subscriptions. The State maintains a State Mental Hospital at Prova, which averages about 400 inmates; a State Industrial School at Ogden, with an average of about 100 to 125 inmates; and a School for the Deaf and Blind at Ogden, with an enrollment of from 100 to 125.

Politics and Government. There was no State election during the year, as the term of Governor Spry does not expire until January, 1917. The next State election occurs in November, 1916. The legislature on February 5 voted against the constitutional amendment providing for the direct election of senators.

Legislation. The legislature met in 1913 and passed three measures of importance. The first of these provided the indeterminate sentence for persons convicted of crime. The second was a provision against unfair competition and discrimination, and the third was a measure providing for mothers' pensions. See also Liquor Regulation.

State Government. Governor, William Spry; Secretary of State, D. Mattson; Treasurer, J. D. Jewkes; Auditor, L. G. Kelly; Attorney-General, A. R. Barnes; Superintendent of Education, A. C. Nelson; Commissioner of Insurance, Willard Done—all Republicans.

Judiciary. Supreme Court: Chief Justice, W. M. McCarty; Justices, J. E. Frick and Daniel N. Straup; Clerk, H. W. Griffith—all Republicans.

State Legislature, 1913. Democrats: Senate, 2; House, 14; joint ballot, 16. Republicans: Senate, 16; House, 31; joint ballot, 47. Republican majority: Senate, 14; House, 17; joint ballot, 31.

The names of senators and representatives to Congress will be found in the article United States, section *Congress*.

UTAH. University of. A State institution for higher education founded at Salt Lake City, Utah, in 1850. The total enrollment in all departments in December, 1913, was 1190. The faculty numbered 70. There were no noteworthy changes in the faculty during the year, and no notable benefactions were received. The university is supported almost entirely by the State. The library contains about 37,000 volumes. The president is J. T. Kingsbury, Ph. D., D. Sc.

VACCINATION. See Small-pox and Vaccination.

VACCINE THERAPY. A new vaccine against whooping cough was prepared from the Bordet-Gengou bacillus isolated from a case of whooping cough. Many favorable reports as to the curative value of this vaccine were made. See Diphtheria and Small-pox.

VACUUM PUMP. See Pumping Machinery.

VALPARAISO UNIVERSITY. An instition for higher education, founded at Valparaiso, Ind., in 1873. There were enrolled in all departments in the autumn of 1913, 5000 students. The faculty numbered 207. There were no notable changes in the faculty during the year, and no large benefactions were received. The productive funds of the university amount to about $350,000. The library contains about 15,000 volumes. The president is Henry B. Brown, A.M.

VAMBERY, Arminius. A Hungarian linguist and Orientalist, died September 15, 1913. He was born in Duna-Szerdahely, Hungary, of Jewish parents in 1832. After studying privately and at the University of Presburg, he went to Constantinople to study Turkish life and language. There he earned his living by reciting Turkish and Persian poems in the coffee houses, and by teaching languages. In time his abilities gained for him an entrance in the Ottoman society. His interest in languages led to a journey to Khiva, Bokhara, and Samarkand. He had already been made a corresponding member of the Hungarian Academy of Sciences, and in 1861 this body voted to him 1000 florins on condition that he should go into the interior of Asia and investigate the affinities of the Magyar tongue. The next few years were spent in Persia and other Oriental countries. On his return to Hungary he was received with a coolness which was due chiefly to his humble birth and the fact that he was a Jew. On account of this, he went to London in 1864. His account of his travels was a great success, and was afterwards translated into fourteen European and Oriental languages. On his appointment as professor of Oriental languages in the University of Budapest, he returned to Hungary and published a number of books on linguistic and Asiatic subjects. He made periodical visits to Constantinople, becoming in late years an adviser of the Sultan Abdul Hamid; and he made repeated visits to England, where he lectured. He took a strong anti-Russian attitude toward the Far Eastern question, especially in reference to what he declared to be a steady advance of Russia toward the frontiers of India. His published writings include *Travels in Central Asia* (1864); *Sketches of Central Asia* (1867); *The Central Asia Question* (1874); *Arminius Vambery, his Life and Adventures* (1883); *The Coming Struggle for India* (1885); *The Story of My Struggles; Western Culture in Eastern Lands* (1906). Also several works relating to literature, ethnography, and the linguistics of Central Asia.

VANADIUM. See Chemistry, Industrial; and Radium, Uranium, and Vanadium Ores.

VANDERBILT UNIVERSITY. An instition for higher education founded in Nashville, Tenn., in 1872. The number of students enrolled in the several departments of the university in the autumn of 1913 was 1000. The faculty numbered 125. There were no noteworthy changes in the faculty during the year. The university received a gift of $1,000,000 from Andrew Carnegie in May for a medical college. The productive funds of the university amount to about $2,500,000, and the income to about $245,000. The library contains about 2000 volumes. The president is J. H. Kirkland, LL.D., D. C. L.

VARDAMAN, James K. United States sensenator (Democrat) from Mississippi. He was born in Jackson County, Miss., in 1861; spent his early years on a farm; and at the age of twenty removed to Carrollton, Miss., and began the study of law. In 1881 he began to practice at Winona, and in connection with his law practice edited the Winona *Advance*. He removed in 1884 to Greenwood, Miss., where he practiced law and became the owner and editor of the Greenwood *Enterprise*. He was one of the first men in the South to support W. J. Bryan. Elected to the State legislature in 1889, he was reëlected in 1891; was speaker of the House of Representatives in 1894; in 1895 unsuccessful candidate for governor of the State; established and edited the Greenwood *Commonwealth* in 1896, and was its editor until his election as governor of the State in 1903. He served in the Spanish-American War, attaining the rank of major. Returning to Mississippi in 1899, he became a candidate for governor and was again defeated. Four years later, however, he was elected—the first governor nominated under the primary system. In 1907 he was an unsuccessful candidate for the United States Senate. In 1910 the death of Senator McLaurin caused a vacancy and he was again a candidate, to be again defeated. In 1911 he defeated Senator Percy for renomination by 60,000 votes in a total vote of 133,000. Senator Vardaman has attracted public attention by reason of his bitter speeches on the negro question and by the aggressive campaigns carried on by him in Mississippi.

VASSAR COLLEGE. An institution for the higher education of women, at Poughkeepsie, N. Y., founded in 1861. The enrollment in all departments of the college in 1913-14 was 1073. The faculty numbered 115. Emerson D. Fite and F. F. Thompson were added to the department of political science. Taylor Hall, a new art building, was begun in December, 1913. The Sutro Scholarships, of $10,000 each, were established during the year. The income from all sources was about $1,175,000. The library contains about 80,000 volumes. James M. Taylor, D. D., LL. D., resigned the presidency in 1913, after a long tenure of that office.

VENEZUELA, UNITED STATES OF. A South American republic, on the northern coast east of Colombia. Capital, Carácas.

AREA AND POPULATION. Venezuela consists of twenty states, two territories, and a federal district. The total area is officially stated at 1,020,400 square kilometers (393,976 square miles); according to an unofficial planimetric calculation, it is 942,300 square kilometers (363,822 square miles). The population as estimated in 1913 was 2,755,685. Many regard this figure as much too large, some holding that it is even twice as large as the actual number of inhabitants. It is estimated that about seven-tenths of the people are mixed bloods, about one-tenth whites, and the remainder negroes and Indians. Movement of the population as reported for 1911 and 1912, respectively: Marriages, 8017 and 9365; births, 83,753 and 75,892; deaths, 54,428 and 65,729; immigrants, 9204 and 9672; emigrants, 7219 and 7991. The larger towns, with estimated population, are: Carácas (in Federal District), 73,000; Maracaibo (Zulia), 50,000; Valencia (Carabobo), 40,000; Barquisimeto (Lara), 32,000; Puerto Cabello (Carabobo), 14,000; La Guaira (Federal District), 12,000.

EDUCATION. Illiteracy is prevalent, probably three-fifths of the inhabitants being unable to read. In 1910 there were 1593 primary schools, with an enrollment of 51,047 pupils; of these schools, 136 were private, with 3917 pupils. Of the public primary schools, 1009 (with 47,130 pupils) were classed as national schools, 199 (with 5972 pupils) as federal schools, and 249 (with 8071 pupils) as municipal schools. For secondary instruction there are reported 34 national and 63 private colleges. There are a few institutions for special or technical instruction and, at Carácas and Mérida, two universities.

PRODUCTION AND COMMERCE. Agriculture and stock-raising are important. Large mineral resources exist, but, aside from some exploitation of gold, copper, and asphalt, they are little developed. There is little manufacturing. The crops include coffee, sugar cane, cacao, and cereals. Among important forest products are rubber, balata, copaiba, and vanilla.

Imports and exports in fiscal years ended June 30 have been valued as follows, in thousands of bolivars:

	1909	1910	1911	1912	1913
Imports	49,180	56,641	80,179	105,677	106,575
Exports	83,145	86,420	96,920	133,324	130,886

Leading imports include cotton goods, provisions, and hardware. Principal exports in the fiscal years 1912 and 1913, in thousands of bolivars:

	1912	1913		1912	1913
Coffee	79,314	78,702	Gold	5,252	6,131
Rubber and balata	11,631	12,344	Aigrettes	1,636	1,934
Cacao	15,936	12,010	Copper	....	1,663
Hides and skins	10,271	11,088	Asphalt	1,587	1,642
			Cattle	1,152	1,087
			Tonka beans	807	....

Trade by countries in the fiscal years 1912 and 1913, in thousands of bolivars:

	Imports		Exports	
	1912	1913	1912	1913
United States	32,309	35,403	43,387	51,367
United Kingdom	27,167	22,971	10,696	8,478
Germany	16,314	16,577	22,590	20,429
France	13,895	13,556	39,397	35,825
Netherlands	7,461	8,658	4,858	3,691
Spain	4,403	4,800	8,068	7,587
Italy	3,397	3,734	1,275	1,101
Other	731	876	3,053	2,408
Total	105,677	106,575	133,324	130,886

In the fiscal year 1913 there entered at the ports 1642 vessels, of 1,548,267 tons. Merchant marine (1911), 8 steamers, of 2046 tons net, and 15 sail, of 2432 tons net.

COMMUNICATIONS. The unsettled political conditions to which Venezuela has been subject have repelled the investment of foreign capital, and transportation facilities are very inadequate. Railways extend from coast towns into the interior, but they are not connected to form a system. In 1911 the length of railway in operation was 925 kilometers (575 miles). New railway construction of the year included the completion of the extension from Soapire to Santa Terasa, and work on the construction of the Tacheira Railway to Mazita, De Cara, and De Poro. There are many miles of navigable river. Reported length of telegraph lines, 7889 kilometers, with 183 offices. Post offices, 284.

FINANCE. The standard of value is gold; the monetary unit is the bolivar, whose par value is equivalent to that of the franc, 19.295 cents. In the year ended June 30, 1910, revenue and expenditure amounted to 48,552,857 and 52,337,125 bolivars, respectively; in the fiscal year 1911, 62,939,075 and 61,640,010. For the fiscal year 1914, see the accompanying table:

Budget for 1913-14:	Bolivars
Import duties	35,520,420.00
Liquor tax	3,200,000.00
Cigarettes	4,560,000.00
Wharves	4,000,000.00
Stamps	1,440,000.00
Sundries	3,507,510.00
Total revenue	52,227,930.00
Expenditures:	Bolivars
Interior	12,541,467.02
Foreign relations	1,339,573.79
Treasury	13,825,366.60
War	10,941,743.75
Fomento	4,443,928.00
Public Works	4,287,760.00
Education	4,338,460.00
Sundries	449,630.84
Total	52,217,930.00

The public debt declined from 226,654,480 bolivars at the end of 1907 to 189,370,424 at the end of 1911 and 181,612,182 at the end of 1912. On the last date, the foreign debt was 118,511,032 bolivars, and the internal debt 63,101,150.

ARMY. Nominally military service is obligatory for each citizen from 18 to 50 years, but in practice the army is recruited by voluntary enrollment or by force. On a peace basis there are 11,768 officers and 7600 men, there being a greater number of officers on account of the system of organization of cadres by which the skeleton units can be recruited up to any desired strength. On a war basis an army of 100,000 men has been made as the peace strength, but this is without any special basis of foundation.

GOVERNMENT. The constitution of August 9, 1909, vests the legislative power in a congress of two houses, the Senate (40 members) and the Chamber of Deputies. The executive authority is a president, elected for four years and assisted by a cabinet of seven members. The president in 1913 was General Juan Vicente Gómez, whose administration began April 19, 1910. President of Council, Dr. José Gil Fortoul; first vice-president, General Mariano García.

HISTORY. Congress met in Carácas, April 19, and elected Dr. José Gil Fortoul president of the Senate and Dr. J. Eugenio speaker of the House. On April 29 General Juan Vicente Gomez addressed his presidential message to Congress, reporting that he had been active in the development of communications, agriculture, stock-raising, and manufacturing, that amicable relations with France had been assured by a protocol signed at Carácas on February 11, 1913, and that the cruiser *Mariscal Sucre* had been added to the navy. On May 24 President Gomez promulgated a new naturalization law, just passed by congress. One year of residence was required before naturalization, except in the case of distinguished foreigners, husbands of Venezuelan women, and immigrants under contract. Naturalized citizens must take the oath of allegiance, must be over 21 years of age, and must agree that their minor children shall be Venezuelans. On July 1 a board of mines was established; it consisted of a technical inspector, a general inspector, and the director of the national laboratory. The mine owners were required to file elaborate reports of the quality and quantity of their output.

The Gomez government survived two rebellions in 1913. The first, an uprising in the state of Trujillo, was led by Juan Aranja as a protest against the alleged intention of General Gomez to declare himself for reëlection in 1914. The insurrection was crushed, but there remained a strong party of *Nationalistas*, headed by General Hermandez, who strenuously opposed the suggested continuance of the present administration. The second revolution was opened by a manifesto of ex-President Cipriano Castro, dated July 27, and denouncing Gomez as a "monster." The president replied with a counter-proclamation on July 29, and on August 1, with the approbation of the federal council, he took advantage of article 82 of the constitution to suspend all limitation on his power, declare martial law, and march against the rebels, who had gathered in the southwest. The insurrectionary forces were easily dispersed and several leaders were captured, among them, General Torres Castro, a relative of Cipriano Castro.

The protocol referred to in the president's message to Congress was subsequently ratified by Congress and the government settled the claims of the Carenero Railway and Navigation Company, a French syndicate, by the payment of 300,000 bolivars.

VERMONT. POPULATION. The population of the State in 1910 was 355,956. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 359,957.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	45,000	1,665,000	$1,349,000
	1912	45,000	1,800,000	1,296,000
Wheat	1913	1,000	24,000	24,000
	1912	1,000	25,000	24,000
Oats	1913	79,000	3,018,000	1,602,000
	1912	77,000	3,311,000	1,589,000
Potatoes	1913	25,000	3,175,000	2,286,000
	1912	26,000	3,640,000	2,002,000
Hay	1913	1,000,000	*a*1,280,000	18,560,000
	1912	1,010,000	1,515,000	21,210,000
Tobacco	1913	100	*b* 155,000	28,000
	1912	100	170,000	31,000

a Tons. *b* Pounds.

MINERAL PRODUCTION. The only important mineral products of the State are marble and granite. Vermont is the leading State in the production of both marble and granite, and second in the production of slate. The total production of stone, exclusive of slate, in 1912 was valued at $6,581,203, of which $3,494,253 was marble, and $3,074,306 granite. Considerable development of asbestos property has been in progress in recent years, and this promises to be an important industry. Other mineral productions of some importance are clay products, feldspar, mineral paints, and sand and gravel. The total value of the mineral products in 1912 was $9,213,912, compared with $8,434,516 in 1911.

TRANSPORTATION. The total railway mileage of the State, including yards, tracks, and sidings in 1913, was 1461. The total number of miles by the main line and branches of steam roads was 1105.

EDUCATION. The total school population of the State in 1913 was 79,218. The total enrollment in public schools was 64,825. The average daily attendance was 51,563. The total number of teachers was 3079, of whom 227 were men and 2852 women. The average salary of all teachers, $43 a month; for male teachers it was $74.07, and for female teachers, $40.79. The legislature of 1912 enacted several important measures. Among these was one providing for agricultural extension work in connection with the State Agricultural College, and the creation of a teachers' retirement fund. More adequate provision was made for teacher-training courses. The right of election of the superintendent of education was taken from the General Assembly and given to the board of education. See also EDUCATION IN THE UNITED STATES.

FINANCE. The total receipts for the fiscal year ending June 30, 1913, were $3,332,520. The disbursements for the same period were $3,019,579. At the beginning of the fiscal year there was on hand a balance of $519,388, leaving a balance at the end of the fiscal year of $313,002. The chief sources of income are the corporation and collateral inheritance taxes, and general taxation. The chief expenditures are for support of schools, maintenance of highways, and the expenses of State officers.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the State prison at Windsor, the House of Correction at Rutland, the Industrial School at Vergennes, the State Asylum for the Insane at Waterbury, the Soldiers' Home at Bennington, and the Vermont Sanitorium at Pittsford. There are also a number of hospitals under the control of the State board and others privately controlled but partially supported by the State.

Politics and Government. There was no election for State officers during the year, as the term of Governor Fletcher does not expire until January 1, 1915. The next State election occurs in November, 1914, the voters in connection with their annual town meetings having adopted the various constitutional amendments providing among other things for the abolishing of September elections, the assembling of the legislature in January instead of October, as formerly, the organization of corporations under a general law instead of under special acts, and an authorization for the legislature to pass a workmen's compensation law.

Legislation. The legislature met in 1913 and passed a large number of important measures. These included a uniform negotiable-instruments act, a blue-sky law, a measure creating a State board of conciliation and arbitration for the adjustment of labor disputes, and another measure providing an eleven-hour day and a 58-hour week for women and minors in certain employments. The legislature provided for the submission to the people of an amendment to the constitution permitting the passing of a workmen's compensation law. A commission was created to investigate employers' liability laws. Electrocution was substituted for hanging as a form of capital punishment. A uniform warehouse receipts act was passed. A measure was enacted establishing the State teachers' retirement fund, and another act provided for the juvenile court. Measures were enacted regulating the licensing of pawn shops, and a commission was appointed to investigate tuberculosis. Provision was made for the submission to the people of the question whether they prefer a preferential primary system whereby voters may instruct their delegates to political conventions as to their preference for candidates, or a direct primary system whereby voters vote directly for candidates for State, congressional, and county officers. See also Liquor Regulation.

State Government. Governor, Allan M. Fletcher; Lieutenant-Governor, F. E. Howe; Secretary of State, Guy W. Bailey; Treasurer, Edward H. Deavitt; Auditor, Horace F. Graham; Attorney-General, R. E. Brown; Adjutant-General, Lee S. Tillotson; Superintendent of Education, Mason S. Stone; Commissioners of Insurance, E. H. Deavitt, and Guy W. Bailey; Commissioner of Agriculture, E. S. Brigham—all Republicans.

Judiciary. Supreme Court: Chief Justice, George M. Powers; Assistant Justices, Loveland Munson, John H. Watson, Seneca Haselton, William H. Taylor; Clerk, L. C. Moody—all Republicans, except Haselton.

State Legislature, 1913. Republicans: Senate, 27; House, 146; joint ballot, 173. Democrats: Senate, 3; House, 56; joint ballot, 59. Progressives: Senate, 0; House, 22; joint ballot, 22. Republican majority: Senate, 24; House, 68; joint ballot, 92.

The representation in Congress will be found in the article United States, section *Congress*.

VERMONT, University of. A State institution for higher education, founded at Burlington, Vt., in 1791. The students enrolled in the several departments in the autumn of 1913 numbered 606. There were 105 members of the faculty. During the year G. G. Groat, Ph. D., was appointed professor of economics, and W. H. Freedman was appointed professor of electrical engineering. The university received a fund of $1000 to be known as the Calvin Peare Classical Fund. The permanent funds amounted at the end of the collegiate year 1912-13 to $916,311, and the annual income to about $208,000. The library contains about 87,500 volumes. The president is Guy Potter Benton, D. D.

VETERINARY ASSOCIATIONS AND SOCIETIES. See Veterinary Science.

VETERINARY MEDICINE, Schools of. See Universities and Colleges.

VETERINARY SCIENCE. Among the notable events of the year was the holding of the fiftieth annual meeting of the American Veterinary Medical Association at New York from September 1 to 5, in which city it was organized a half century ago. In his presidential address Dr. J. R. Mohler, in discussing the importance of the work, pointed out that there is not less than 5 billion dollars invested in the various kinds of domesticated animals in the United States and Canada, and that government statistics for the previous year would show in the United States alone a loss of more than 6½ million swine, nearly 2 million cattle, over 2½ million sheep, and more than ½ million horses and mules, the total value exceeding 200 million dollars. In the opinion of competent men a large proportion of this loss could be eliminated by judicious sanitary measures. The officers of the association elected for 1914 are: President, Dr. C. J. Marshall of Philadelphia; secretary, Dr. N. S. Mayo of Chicago; and treasurer, Dr. G. R. White of Nashville.

The United States Livestock Sanitary Association met in Chicago from December 2 to 4. This association includes all the leading Federal and State livestock sanitary officials. The tenth International Veterinary Congress will be held in London August 3-8, 1914.

One of the important events of the year was the appointment of Dr. Fred Torrance as veterinary director-general to the Canadian government, vice Dr. J. G. Rutherford, resigned.

The veterinary profession lost one of its leaders in the death of William Hunting, which took place in England on October 24, at the age of 69. Dr. Hunting was acknowledged to be the greatest authority on clinical glanders. He founded and edited *The Veterinary Record*, a weekly journal, and was a prolific writer to the veterinary press.

In the United States Congress authorized the Secretary of Agriculture to promulgate regulations applying to viruses, serums, toxins, and analogous products, intended for use in the treatment of domestic animals, when imported or shipped interstate, and appropriated $25,000 for the enforcement of this law. Regulations were drawn up which became effective July 1. Laws regulating the sale of these products also were enacted by the States of Alabama, Georgia, and Pennsylvania. The embargo placed upon the importation of livestock from Great Britain, due to the outbreak of foot-and-mouth disease in 1911, was removed in March, following its supposed eradication from that country; but as the result of an outbreak among cattle it was replaced on November 12.

It is noteworthy that in the Federal meat inspection work, with a decrease from 1912 of nearly 2,700,000 hogs and of over 375,000 cattle slaughtered, the number of carcasses condemned was nearly 47,000 greater. The increase in condemnation was greater in hogs and due principally to hog cholera, but tuberculosis continued to be the greatest cause of condemnations. Infectious bulbar paralysis, also known as pseudorabies and Aujeszky's disease, was found to occur in several states in Brazil.

HOG CHOLERA. Government statistics show that there was a loss of more than 6½ million swine in the United States in 1913, something like nine-tenths being due to hog cholera. In Indiana there was a loss in 1912 of 562,542 hogs, valued at more than 3½ million dollars, cholera being by far the predominant factor in this loss. This disease, though not absolutely preventable, can be greatly reduced by the judicious application of serum, together with proper sanitary control. The last Congress appropriated the sum of $75,000 for eradication work, and this was commenced in Iowa on July 1. Several bills were introduced in Congress during December asking for from $250,000 to $750,000 for investigation and eradication work, and the indications are that a large sum will be appropriated.

Investigations of the occurrence of micro-organisms in the blood and tissues of cholera hogs with improved apparatus, including the ultramicroscope and the ultrafilter, cast much light upon the subject. King and Hoffman found that a new spirochete, which occurs in the intestinal ulcers, crypts in the ceca, and external local lesions of animals suffering from the disease and which they have named *Spirochæta suis*, was capable of producing typical hog cholera when injected into healthy hogs.

CONTAGIOUS ABORTION. Studies reported upon during the year indicated that both carbolic acid and methylene blue administered by mouth have considerable preventive and curative value when used against contagious abortion. Studies by Schroeder and Cotton showed that the udders of apparently healthy cows are the normal habitat of the abortion bacillus, that the bacillus may be eliminated for years from the udders, and that it cannot with certainty be excluded from the milk, no matter how much cleanliness and care may be used in its production. Investigations at the Kentucky experiment station led to the description of *Bacillus abortivus equinus* as the cause of the disease in the mare. Good and Corbett stated that in Kentucky in some seasons as many as 70 per cent. of the mares in some studs have aborted.

TUBERCULOSIS. In experiments carried on at the Virginia experiment station it was found that the Bang system of eradicating tuberculosis, which consists in isolating reacting animals, taking their calves away at birth, and feeding on pasteurized milk or with milk from healthy cows and with them building up a new herd, was impracticable, except possibly with very valuable pure-bred animals. Important studies of avian tuberculosis at the Wisconsin experiment station were reported upon. This disease of fowls has become of great economic importance and is widespread in its distribution.

TEXAS FEVER AND THE CATTLE TICK. The work of eradicating the cattle tick, which spreads the infection of Texas or splenetic fever of cattle, for which $325,000 was appropriated by Congress to the United States Department of Agriculture, was continued in coöperation with the authorities of various southern States. During the fiscal year 1913 areas in eleven States aggregating 24,556 square miles were released from quarantine and on September 1, 9191 square miles were added, making a total of more than 193,000 square miles, out of the 741,555 square miles infested, that have been cleaned of the cattle tick and released from quarantine since the work started. The average market value of hides from tick-infested animals from many southern districts is three cents per pound less, on an average, than for hides not damaged.

DOURINE. This disease is now believed to be eradicated from Iowa. It was discovered in Montana in July, 1912, and has become more or less prevalent in the eastern section of that State and extends into the western portion of North and South Dakota.

EQUINE PIROPLASMOSIS. This disease was discovered to occur in the New World for the first time by Darling in Panama, where it appears to be endemic in the interior among native horses. The tropical horse-tick, *Dermacentor nitens*, is thought to be the means by which it is transmitted.

PARASITES. The studies of Ransom showed *Cysticercus ovis*, the intermediate stage of the dog tapeworm (*Tænia ovis*), to be the cause of tapeworm cysts in mutton in the United States. This parasite is of considerable economic importance since it not infrequently causes the condemnation of carcasses, and because of the direct losses which occur among sheep as a result of its invasion. Over 17,000 of the sheep slaughtered under Federal supervisions in 1912 were found to be affected with measles. Important studies of Manson's eyeworm, a parasite in the eyes of chickens, were made by Wilcox and McClelland in Honolulu, where it is found in nearly every flock, and the number in an eye often reached a total of 50 or 60. The best treatment was found to consist in anæsthetizing the eye with a 5 per cent. solution of cocaine, then lifting the nictitating membrane and dropping a 5 per cent. solution of creolin directly into the inner corner. Studies of trichinæ have shown that the larvæ in pork die after a brief exposure to a temperature of 127.4° to 131° F. *Habronema muscæ*, a parasite occurring in the stomach of the horse, was found by Ransom to be transmitted by the house fly. Investigations in the Philippines have shown the kidney worm *Stephanurus dentatus* to parasitize nearly 50 per cent. of the native hogs on the Island of Luzon. Studies by Blacklock and York in England indicate that the symptom-complex of the disease clinically known as dourine can be produced by more than one species of trypanosome. Rapid progress was made in the United States in the work of eradicating scabies in sheep, cattle, and horses.

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VICTORIA. A state of the commonwealth of Australia. Area, 87,884 square miles. Population (census of April 3, 1911), 1,315,551, exclusive of full-blooded aboriginals. Melbourne is the capital and the temporary capital of the commonwealth. Population (1911), 38,292; population of the local government area, 103,593; with suburbs, 588,971. During the year ending June 30, 1913, a length of 25 miles of new railway was opened for traffic, and 242 miles was under construction. The total mileage opened was 3648. The railway construction was undertaken by the railway construction branch under the control of the board of land and works which was to transfer the railway to a board of three commissioners who have supreme control of administration and are free from political interference. All of the public railways, excepting a short length of 14 miles in 1913, were owned and controlled by the state. A 100-mile branch westward from the Ballarat-Geelong line was opened during the year and 242 miles were put under construction, the most important element being the Bairnsdale and Orbost lines which eventually would tend towards a coast connection with the New South Wales Railway system. The governorship in 1913 was vacant, owing to the resignation of Sir J. M. Fleetwood Fuller. In July some 160 gold miners at the Bendigo mines went on strike with the purpose of forcing nonunionists to join the union. In December Premier W. A. Watt resigned and a new ministry was formed with: G. A. Elmslie as premier and treasurer; G. M. Prendergast, chief secretary; W. J. Evans, attorney-general and public health; John Lemmon, education and labor; W. Plain, lands; A. R. Outrim, mines; J. W. Billson, railways; A. McClellan, public works.

VIRGINIA. POPULATION. The population of the State in 1910 was 2,061,612. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 2,129,003.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	1,980,000	51,480,000	$39,125,000
	1912	1,980,000	47,520,000	33,739,000
Wheat	1913	780,000	10,608,000	10,184,000
	1912	714,000	8,596,000	8,682,000
Oats	1913	195,000	4,192,000	2,180,000
	1912	175,000	3,885,000	2,020,000
Rye	1913	58,000	713,000	578,000
	1912	48,000	600,000	510,000
Potatoes	1913	105,000	9,870,000	7,896,000
	1912	95,000	8,265,000	6,372,000
Hay	1913	750,000	[a] 952,000	14,750,000
	1912	741,000	889,000	13,513,000
Tobacco	1913	200,000	[b] 154,000,000	21,406,000
	1912	187,000	[b] 112,200,000	13,464,000

[a] Tons. [b] Pounds.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $14,995,842, compared with $13,713,566 in 1911.

The production of coal in the State in 1913 was estimated by the United States Geological Survey at from 5 to 10 per cent. in excess of that of 1912. The total coal production in 1912 was 7,846,638 short tons, valued at $7,518,576. This was an increase of nearly 1,000,000 tons over the production of 1911. Over 75 per cent. of the total increase was made in Wise County. In 1912 8678 men were employed for an average of 251 days, compared with 7392 men for an average of 261 days in 1911. There were no labor troubles in 1912. The fatal accidents during the year numbered 75, of which 67 were underground, and 8 on the surface. Of the deaths underground, 33 were due to falls of roof and 10 to explosions or burns of gas. The production of iron ore in the State in 1912 was 446,305 long tons, compared with 614,023 in 1911. The production of pig iron in the State was 256,167 long tons in 1912, compared with 293,642 in 1911.

A small amount of copper is produced in the State. In 1912 this amounted to 96,753 pounds. It all came from mines in Prince William County.

The total value of clay products in the State in 1912 was $1,874,174, an increase of $134,274 over 1911. The principal clay product is common brick.

TRANSPORTATION. The railway mileage on January 1, 1912, was 4389.

EDUCATION. The school population of the State in 1911-12 was 616,168, and the enrollment was 409,397. The average daily attendance was 263,291. The total expenditure for schools was $5,628,208.

FINANCE. The report of the State treasury for the fiscal year ending September 30, 1913, showed a balance on hand at the beginning of the year of $224,396. The total receipts for the year were $7,456,007, and the disbursements, $7,062,448, leaving a balance on October 1, 1913, of $627,955. The public debt on October 1, 1913, amounted to $44,635,075.

CHARITIES AND CORRECTION. The State institutions include the penitentiary at Richmond; State farm at Lassiter post office; the Central State Hospital at Petersburg; the Eastern State Hospital at Williamsburg; the Southwestern State Hospital at Marion; Western State Hospital at Staunton; the Virginia Epileptic Colony at Madison Heights; the Catawba Sanitorium at Catawba; and the Virginia State School for the Colored Deaf and Blind at Newport News. In addition there are a number of other institutions supported by the State, but under the control of independent members and directors, as well as a number of private institutions which receive aid from the State.

Politics and Government. The legislature did not meet in 1913, as the sessions are biennial and the last was held in 1912. Virginia was one of the few States in which elections for State officers were held during the year. On November 4 Henry C. Stuart, Democrat, was elected governor almost without opposition. The Republicans and Progressives were unable to agree on a candidate and made no nomination. The Socialist party and Socialist Labor party each made nominations for State officers, receiving votes returned from official ballot. The Republicans made no nominations, and according to custom, the Socialists will now become the minority party and have representation on electoral boards. Richmond began the operation of a commission form of government in part. The administrative board is the executive body for the city, having general charge of business affairs. The council makes its laws as usual. State Senator J. Randolph Tucker, Jr., of Bedford, resigned to accept a place on the Federal bench at Nome, Alaska. See also Liquor Regulation.

State Government. Governor, Henry C. Stuart; Lieutenant-Governor, J. T. Ellyson; Secretary of Commonwealth, B. O. James; First Auditor, C. Lee Moore; Treasurer, A. W. Harman, Jr.; Superintendent of Instruction, R. C. Stearnes; Attorney-General, J. Garland Pollard; Adjutant-General, W. W. Sale; Commissioner of Agriculture, George W. Koiner; Commissioner of Insurance, Joseph Button—all Democrats.

Judiciary. Supreme Court of Appeals: President, James Keith; Justices, S. G. Whittle, John A. Buchanan, George M. Harrison, and Richard H. Cardwell; Clerk of the Court, H. Stewart Jones—all Democrats.

State Legislature, 1913. Democrats: Senate, 35; House, 92; joint ballot, 127. Independents and Republicans: Senate, 5; House, 8; joint ballot, 13. Democratic majority: Senate, 30; House, 84; joint ballot, 114.

The names of senators and representatives to Congress will be found in the article United States, section *Congress.*

VIRGINIA, University of. A State university of higher learning, at Charlottesville, Va., founded in 1819. The enrollment by departments in December, 1913, was as follows: College, 403; law, 258; medicine, 104; graduate students, 47; engineering students, 102. The faculty numbered 93. Prof. A. H. Tuttle retired in 1913 on the Carnegie Foundation. Dr. S. A. Mitchell was elected full professor of astronomy. During the year 1912-13 the university received the sum of $8172 under the will of the late Dr. C. G. Herndon, to endow two medical scholarships. This amount will be increased to about $16,000, when the estate has finally been distributed. Mr. John T. Lupton of Chattanooga, Tenn., donated to the university $1800 for the erection of a statue of George Washington. There were several other small benefactions. The productive funds of the university amounted to $2,061,727 in 1912-13. The income from all sources amounted to $294,294. The volumes in the library numbered about 100,000. The president is E. A. Alderman, D. C. L., LL. D.

VIRGIN ISLANDS. A presidency of the Leeward Islands (q.v.). Road Town, the capital, on the island of Tortola, has 410 inhabitants. Fishing and sugar and cotton-raising are the chief industries. The majority of the trade is with the Danish West Indies. External trade (calendar years) and finance (fiscal years) statistics for the presidency follow:

	1908-9	1909-10	1910-11	1911-12
Imports	£8,629	£7,579	£8,717	£9,570
Exports	7,150	7,519	6,684	8,852
Revenue	2,278	2,371	6,091	8,200
Expenditure	2,251	2,334	5,964	6,446
Shipping *	14,422	12,853	12,770	12,631

* Tonnage entered and cleared.

Customs revenue (1911-12), £1316. There is no debt. The commissioner in 1913 was T. L. H. Jarvis. See Leeward Islands.

VITAL STATISTICS. The New York State Health Department was collecting statistics regarding the mortality rates as connected with the marital condition during the past three years outside of Buffalo and New York City. The most obvious fact indicated by these statistics was that the death rate for husbands is much lower than for single men at each age group except the highest, where it is about the same. The percentage of difference is greatest at the ages 30-39 and 40-49, where the death rate of husbands is somewhat less than one-half that of bachelors. The table shows that the death rate of widowers and divorced men is considerably higher than that of husbands of the same age, and between 30 and 80 years not far different from the death rate of bachelors of the same age. The table shows further that the death rate of wives is lower than that of single women of the same age, the only exception being between ages of 20 and 29, which is perhaps in part due to the influence of child-bearing at those years and in part to the greater average age of wives in that group. The mortality of widows and divorced women is as a rule higher than that of spinsters. From the standpoint of mortality marriage is of less benefit to women than to men.

For the first time in its history the New York City Department of Health prepared a life table. A previous life table was prepared by Dr. John S. Billings under the direction of the Federal Census Bureau based on statistics for the triennium 1879 to 1881, while the 1913 table was based on the statistics of the years 1909 to 1911. The table shows the life expectancy of males and females at certain ages. The figures also show that the duration of life for a child between 5 and 10 years of age was forty-one years thirty years ago, while it is now five years longer than at that time. There has been an increase in the expectancy of life at all ages under 40 years, while at all ages after 40 years, in both males and females, there has been a decrease of expectancy varying from six months at 40 years to three years and three months at 85 years. The expectation of life is greater among females than among males up to 40 years of age; above 40 the reverse is true. It is pointed out that the lesson to be drawn from these figures is that the adult of the present generation is traveling at a pace too fast for his health, and that there is greater need from the standpoint of health for the practice of moderation in all things by the inhabitants of our cities.

Statistics of the population of France in 1912 were published in 1913. The excess of births over deaths was about 57,911, an average increase in population by 15 per ten thousand inhabitants, while in 1911 there was an excess of 34,869 deaths, or a diminution in the population of 9 per ten thousand. This improvement in the situation was due to a reduction in the number of deaths. These increased by only 8537. The number of births was 750,651, while for the five years preceding, 1907-11, the annual average was 770,186. To appreciate the advance of depopulation, it is only necessary to remark that before 1907, France never had less than eight hundred thousand births, before 1887 never less than nine hundred thousand, and before 1867 the figure approximated one million. As for deaths, there were in 1912, 692,740, which represents a diminution of 84,243 in comparison with the previous year. This diminution was due to a double cause. The summer of 1911 was excessively hot and dry, while the summer of 1912 was remarkably cool. In 1911 the intolerable heat killed many young children and a great number of valetudinarians, who except for this unusual season would have lived until the following year. The principal cause of the lower mortality in 1912, therefore, was the cool summer, which considerably lessened the mortality of infants in this year. Dr. Jacques Bertillon calls attention to the fact that Holland, with one-eighth the population of France, has had a larger absolute increase each year. In 1911 her population increased by 79,745. The only portions of French territory in which the birth rate was higher than the death rate were the regions of the north, Brittany, the frontiers of the east, Limousin and Corsica. The decrease in population becomes more marked each year in the basins of the Garonne and the Rhone. The number of marriages increased in 1912 to 311,929. Few countries have a larger rate in proportion to the population. The number of divorces was 14,579.

In Prussia during 1911 there were 1,225,091 births, 732,728 deaths (including 35,874 stillbirths), and 321,151 marriages. The excess of births was 492,363 or 12.1 per thousand of the average population. In 1912 there were born 1,219,867 children (including stillbirths), and there were 671,909 deaths. There were 328,415 marriages. According to this, the number of births was 5224 less than the previous year and the number of deaths 60,819 less. An especially striking feature of last year's statistics is the decreasing number of births with an increase in the number of marriages.

The following statistics as to contagious diseases throughout the world were compiled from the United States Marine Hospital Service reports. While in many instances incomplete and misleading, they were the best obtainable:

SMALL-POX. Algeria, 334 cases, 17 deaths; Arabia, 29 cases, 6 deaths; Argentina, 21 deaths; Australia, 1882 cases; Austria-Hungary, 166 cases, 4 deaths; British East Africa, 62 cases, 22 deaths; Canada, 646 cases, 5 deaths; Dutch East Indies, 2320 cases, 390 deaths; Egypt, 216 cases, 75 deaths; France, 117 cases, 31 deaths; Germany, 10 cases, 1 death; Gibraltar, 4 cases, 1 death; Great Britain, 38 cases, 1 death; India, 925 cases, 409 deaths; Italy, 58 cases, 2 deaths; Japan, 105 cases, 34 deaths; Mauritius, 1073 cases, 126 deaths; Mexico, 2558 cases, 553 deaths; Newfoundland, 63 cases; Peru, 241 cases, 1 death; Philippine Islands, 120 cases; Portugal, 146 cases; Russia, 677 cases, 176 deaths; Servia, "epidemic," 16 cases, 3 deaths; Siam, 22 deaths; Spain, 849 deaths; Straits Settlements, 22 cases, 6 deaths; Sweden, 37 cases, 2 deaths; Switzerland, 135 cases, 1 death; Turkey in Asia, 343 cases, 239 deaths; Uruguay, 44 cases, 2 deaths; West Indies, 8 cases; Zanzibar, 22 cases, 3 deaths. See SMALL-POX.

CHOLERA. Arabia, 126 cases, 23 deaths; Austria-Hungary, 1778 cases, 335 deaths; Bulgaria, 191 cases, 46 deaths; Ceylon, 53 cases, 46 deaths; China, 262 cases, 94 deaths; Dutch East Indies, 2916 cases, 1972 deaths; Greece, 10 cases, 6 deaths; India, 118,004 deaths; Indo-China, 255 cases, 183 deaths; Japan, 156 cases, 44 deaths; Philippine Islands, 116 cases, 79 deaths; Rumania, 5340 cases, 2727 deaths; Russia, 286 cases, 111 deaths; Servia, 4797 cases, 1928 deaths; Siam, 27 cases, 35 deaths; Straits Settlements, 57 cases, 45 deaths; Turkey in Asia, 1074 cases, 531 deaths; Turkey in Europe, 2334 cases, 1357 deaths; Zanzibar, 131 cases, 130 deaths.

YELLOW FEVER. Brazil, 109 cases, 89 deaths; British East Africa, 28 cases, 27 deaths; Ecuador, 369 cases, 206 deaths; Mexico, 32 cases, 10 deaths; Nigeria, "present"; Trinidad, "present"; Venezuela, 15 cases, 3 deaths.

PLAGUE. Afghanistan, September 1 to 30, 1913, 100 deaths daily; Arabia, 90 deaths; Argentina, 32 deaths; Brazil, 212 cases, 120 deaths; Canary Islands, 5 deaths; Chile, 70 cases, 50 deaths; China, 411 cases, 319 deaths; Dutch East Indies, 8909 cases, 8002 deaths; Ecuador, 535 cases, 207 deaths; Egypt, 647 cases, 306 deaths; Eritrea, 43 cases; German East Africa, 503 cases, 459 deaths; Greece, 9 cases, 2 deaths; Hawaii, 4 cases, 4 deaths; India, 194,208 cases, 163,249 deaths; Indo-China, 2745 cases, 2547 deaths; Japan, 208 cases, 147 deaths; Mauritius, 420 cases, 272 deaths; Morocco, 11 cases; New Caledonia, 62 cases, 32 deaths; Persia, 181 cases, 151 deaths; Peru, 568 cases, 217 deaths; Philippine Islands, 28 cases, 21 deaths; Russia, 198 cases, 181 deaths; Siam, 48 deaths; Turkey in Asia, 46 cases, 31 deaths. See PLAGUE.

See CANCER; LEPROSY; TYPHOID FEVER

VIVES Y TUTO, JOSÉ CALASANZIO. A Spanish Roman Catholic cardinal, died September 7, 1913. He was born in 1854 and was educated at Mattaro. At an early age he joined the Capuchins, being admitted in 1869 to the Capuchin Minors of the province of Guatemala, Central America. When General Barrios seized the power of Guatemala in 1872, the religious orders were obliged to leave the country. Vives y Tuto took refuge in Toulouse, where he remained for several years, becoming guardian of the Capuchin convent in Perpignan. In 1880 he returned to Spain and was appointed definitor for his own province. He was created cardinal-deacon of Sant' Adriano al Foro Romano by Leo XIII. in 1899.

VOCATIONAL EDUCATION. See EDUCATION IN THE UNITED STATES.

VODKA. See LIQUORS.

VOLCANOES. The single volcanic disaster of the year occurred on Ambim Island, in the New Hebrides group. An outburst on December 5 is reported to have killed 500 natives and to have transformed the face of the island through the outpouring of lava and ash. Many of the Alaskan volcanoes were moderately active, notably those near Cook Inlet and along the Alaska Peninsula and its bordering islands. Katmai Volcano, across from Kodiak Island, shared in the eruptive display, but was not so destructively violent as in 1912, when it devastated a large area in its vicinity. For results of recent research in regard to volcanoes, see GEOLOGY and MINERALOGY.

WAGES. See LABOR LEGISLATION; MINIMUM WAGE; ETC.

WAIT, LUCIEN AUGUSTUS. An American mathematician and educator, died September 6, 1913. He was born in Highgate, Vt., in 1845, and graduated from Harvard College in 1870. From 1870-77 he was assistant professor of mathematics at Cornell University, but in 1873 he resigned these duties to serve as United States consul at Athens and Piræus. At the conclusion of this service he returned to Cornell University, where in 1877 he was appointed associate professor of mathematics. In 1895 he became head of the mathematical department, and served in that position until 1910, when he resigned.

WAKEMAN, THADDEUS BURR. An American author and advocate of free thought, died April 23, 1913. He was born at Greenfield Hill, Conn., in 1834; graduated from Princeton College in 1854, and in 1856 was admitted to the bar. He was president of the Liberal University of Kansas City until 1904, but on account of ill health, he was obliged to end his university work. He removed to Connecticut to engage in literary work. His published writings include: *An Epitome of Positive Philosophy and Religion; The Religion of Humanity; Liberty and Purity; The Age of Revision;* and *Evolution or Creation?* He made translations of Goethe's religious and other poems, and lectured on these and scientific subjects.

WALLACE, ALFRED RUSSELL. An English scientist, died November 7, 1913. He was born at Usk, in Monmouthshire, Wales, in 1823, and was educated at the Hertford Grammar School. In 1844, while a master at the Collegiate School at Leicester, he became acquainted with a naturalist, H. W. Bates, and as a result of the acquaintance, the two determined to make a natural history expedition to South America. On the return voyage the ship took fire and his notes and collections were burned. In 1853 he published an account of his expedition, entitled *Travels on the Amazon and Rio Negro.* In the following year he started for the Malay Archipelago with the object of obtaining specimens for his own collections and for those of museums and amateurs. He remained away from England for eight years, and during that time traveled over 14,000 miles in the East Indian Archipelago. Wallace was first introduced to Charles Darwin in 1854, the same year in which the former started on his East Indian journey. Nothing important seems to have come of this meeting, but it afterwards developed that the two scientists even at this time were engaged in the working out of theories, and practically came to the same conclusion in regard to the operation of the law of natural selection. In 1856 Darwin began to write out his views on the "tendency in organic beings descended from the same stock to diverge in character as they became modified." Two years later he received from Wallace, who was then in the Moluccas, an essay on the "tendency of varieties to depart indefinitely from the original type." In this essay Darwin's own theory is clearly expressed. A result of this incident was that Darwin and Wallace became firm friends and frequent correspondents. Wallace's writings did much to promote the progress and understanding of the Darwinian doctrine, but he did not hold with Darwin in all the latter's theories. He held, for example, that other forces besides natural selection have molded a development of the human race, and a *World of Life,* published in 1910, gave clear expressions to these views. In 1881 Wallace was granted the civil pension of £200 a year. In addition to his studies in biology, he wrote much on other subjects. He early became impressed with the evils of the landlord system, and wrote in 1882 *Land Nationalism, Its Necessity and Aims,* and in 1913 *Social Environment and Moral Progress* related to the same subject. He also became interested in physical phenomena, and wrote in 1881 *Miracles and Modern Spiritualism.* In this he expressed a belief in the existence of præterhuman intelligences, able to act on matter and to influence the minds of men.

WARWICK, CHARLES FRANKLIN. An American lawyer, public official, and writer, died April 4, 1913. He was born in Philadelphia in 1852; educated in the grammar schools of that city; and studied law at the University of Pennsylvania, but was obliged to leave his law studies before graduation and became a bookkeeper, studying at night and teaching in night schools. In 1873 he was admitted to the bar; became interested in politics; from 1884-95 was city solicitor of Philadelphia; and from 1895-99 was mayor of the city. The election of Mr. Warwick as mayor was one of the first blows dealt to the leadership of Senator Quay. He defeated Quay's candidate, Boies Penrose, who later became a United States senator. At the expiration of his office as mayor, Mr. Warwick became an active criminal lawyer. He found time, however, to study and write about the French Revolution. His first work, *Mirabeau,* was published in 1904. This was followed by *Danton and the French Revolution* (1908); *Robespierre and the French Revolution* (1909); and *Napoleon and the End of the French Revolution* (1910). He was a great admirer of Napoleon, and his Napoleonic collection is one of the most interesting in the United States.

WASHINGTON. POPULATION. The population of the State in 1910 was 1,141,990. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 1,344,686.

AGRICULTURE The area, production, and value of the principal crops in 1912-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	34,000	952,000	$ 762,000
	1912	31,000	846,000	651,000
Wheat	1913	2,300,000	53,300,000	38.909.000
	1912	2,285.000	53.728,000	36.535,000
Oats	1913	300,000	14.250.000	5,700,000
	1912	284,000	13,689,000	5,476,000

		Acreage	Prod. Bu.	Value
Rye	1913	8,000	168,000	101,000
	1912	9,000	180,000	117,000
Potatoes	1913	60,000	7,380,000	4,428,000
	1912	68,000	11,356,000	4,088,000
Hay	1913	780,000	a1,794,000	19,555,000
	1912	776,000	1,707,000	17,241,000

a Tons.

Mineral Production. The total value of the mineral products of the State in 1912 was $15,347,313, compared with $15,865,277 in 1911. The State produces a considerable amount of copper. This in 1912 amounted to 1,069,938 pounds of blister copper, compared with 195,513 pounds in 1911. The total production of coal in the State in 1912 was 3,360,932 short tons, valued at $8,042,871. This was a decrease from the production of 1911, which was 3,572,315 tons. The coal-mining industries of the State have suffered considerably during the last few years from the competition of fuel oil in California. Nearly all the Puget Sound steamers, which formerly consumed the greater part of the Washington coal, now burn fuel oil. Its use is becoming general, also, among railroads in the State. In 1912 there were 5519 men employed in the coal mines of the State, compared with 6498 in 1911. There were two strikes in the State during the year, and these were not of great importance. The total number of men killed in 1912 was 14, compared with 27 in 1911. The total value of the clay products in the State in 1912 was $2,388,870, a decrease of $451,502 from 1911. The principal clay product is vitrified brick.

Transportation. The total railway mileage in the State on June 30, 1913, was 8830.90. The railways having the longest mileage are the Northern Pacific, 2738; the Great Northern, 1391; the Oregon-Washington Railroad and Navigation Company, 1199; Chicago, Milwaukee, and St. Paul, 807; Spokane, Portland, and Seattle, 548.

Education. The number of children of school age in the State on January 1, 1913, was 286,849. The enrollment in the schools was 230,477, and the average daily attendance was 171,488. The total number of teachers employed was 8459, of whom 6795 were women and 1764 men. The average salary paid to male teachers per month is $106.41, and to female teachers $80.20.

Finance. The total receipts from all sources for the year ending September 30, 1913, were $9,836,293. The total disbursements for the same period were $9,877,661. This included $1,600,000 for the purchase of bonds. There was a balance at the beginning of the fiscal year of $2,446,247, and at the end of the fiscal year of $2,404,879. The chief sources of revenue are from direct and indirect taxes, the chief expenditures are for the accident fund, general fund, schools, highways, and the State militia. The bonded debt of the State amounts to $306,024.

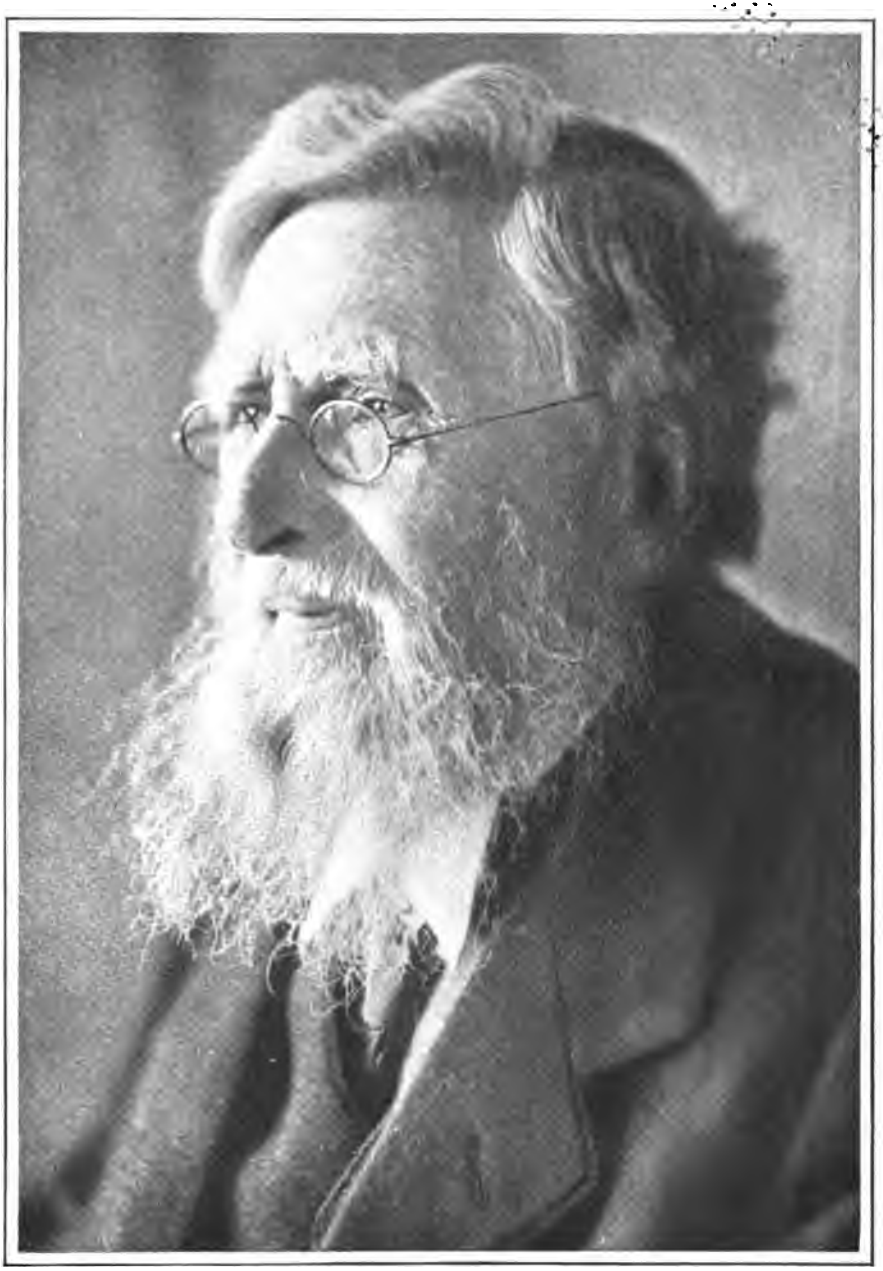
Politics and Government. The State legislature met in 1913, and the most important measures enacted are noted in the paragraph *Legislation* below. In addition to the measures there mentioned, an important act provided for land development. This was popularly known as Murphine's logged-off land bill. Attempts were made by Clallam and King counties to take advantage of the law, but in each case it failed to receive the required number of votes. There was no general State election during the year, as Governor Lister's term does not expire until January, 1917. The next State election will be held November 3, 1914. From July 5 to 12 the fortieth session of the National Conference of Charities and Correction was held in Seattle. In that city in the same month trouble occurred, as a result of a raid, made on the 18th, by a company of American sailors upon the Socialist and I. W. W. headquarters. As a result of newspaper comments on this affair the mayor of the city on the following day ordered a newspaper suppressed and saloons in the city closed. He was, however, restrained from suppressing the newspaper by court order. Mr. Daniels, Secretary of the Navy, on August 20 ordered the punishment of the sailors who had participated in the raid. On September 27 99 Socialists were arrested in Seattle for defying an injunction against street speaking. They were released from jail by writs of *habeas corpus* on October 3. The League of Washington Municipalities, meeting in Spokane on November 19 to 22, determined upon a policy of broader local self-government. The attempted control by the State of the trading-stamp business was taken to the Federal courts and was declared to be unconstitutional. The Supreme Court in reviewing a test case carried up from Spokane declared the minimum-wage law in the State to be constitutional, as it did also the article in the Cudihee case.

Legislation. Acts were passed putting into effect the initiative and referendum and recall amendments to the constitution, adopted at the election of November, 1912. Provision was made for the submission of a constitutional amendment removing restrictions against resident aliens holding lands within the municipalities. An industrial welfare commission was established, with power to fix the minimum wages for women. The legislature enacted a mothers' pension act and a juvenile court act. A State humane bureau was created to provide for the protection of incompetents, children, and minors. The legislature passed a family desertion act and an act providing for the abatement of disorderly houses similar to the Iowa law. State hospitals for the care of tuberculous patients were provided. Death penalty for murder was abolished, teachers' pensions and retirement funds were created, and a department of agriculture was established. Provision was made for the creation of agricultural districts for the purpose of utilizing, improving, and selling the idle lands of the State. A State highway law was passed, and a uniform warehouse receipts act. See also Liquor Regulation

State Government. Governor, Ernest Lister; Lieutenant-Governor, Louis F. Hart; Secretary of State, I. M. Howell; Treasurer, Edward Meath; Auditor, C. W. Clausen; Superintendent of Education, Josephine P. Preston; Attorney-General, W. V. Tanner—all Republicans except Governor.

Judiciary. Supreme Court: Chief Justice, H. D. Crow; Associate Justices, O. G. Ellis, M. A. Fullerton, W. Mount, M. F. Gose, S. J. Chadwick, George E. Morris, Emmett N. Parker, and J. F. Main—all Republicans except Chadwick and Ellis; Clerk, C. S. Reinhart.

State Legislature, 1913. Republicans: Senate, 27; House, 49; joint ballot, 76. Democrats: Senate, 9; House, 18; joint ballot, 27.



Courtesy of the *Review of Reviews*

ALFRED RUSSEL WALLACE

Died November 7, 1913

Progressives: Senate, 6; House, 29; joint ballot, 35. Republican majority: Senate, 12; House, 2; joint ballot, 14.

The names of senators and representatives to Congress will be found in the article United States, section *Congress.*

WASHINGTON, University of. A State university of higher education, founded at Seattle, Wash., in 1861. The total number of students enrolled in the several departments of the university in the autumn of 1913 was as follows: In the college of liberal arts, 1054; college of science, 354; college of engineering, 432; college of law, 196; college of forestry, 72; college of mines, 59; college of fine arts, 59; school of pharmacy, 68; graduate school, 123; or a total of 2440. The faculty numbered 180. The most important event in the history of the university during the year was the retirement of Thomas F. Kane as president, to go into effect January 1, 1914. Dean Henry Landes was appointed acting president. The productive funds of the university amount to about $3,000,000, and the income to about $550,000, most of which is appropriated by the State.

WASHINGTON AND LEE UNIVERSITY. An institution of higher learning, founded at Lexington, Va., in 1749. The students enrolled in all departments in the autumn of 1913 numbered 455. Of these, 274 were in the academic department; 42 in the science department; and 139 in the law department. The faculty numbered 19 professors and 9 instructors. During the year Professor John H. Latané resigned from the professorship of history to become head of the history department at Johns Hopkins University. Dr. C. C. Pearson succeeded him temporarily. Professor A. P. Staples of the law department died in 1913. His successor had not been chosen at the end of the year. The university received from the estate of Robert P. Doremus of New York $2,000,000, subject to life interests of the testator's father and widow. The productive funds of the university amount to about $900,000, and the income for the fiscal year ending April 30, 1913, to about $100,000. The library contains about 50,000 volumes. The president is Henry Louis Smith, Ph.D.

WASHINGTON UNIVERSITY. An institution for higher education, founded, in 1853, at St. Louis, Mo. The students in all the departments of the university in 1913 numbered 1338. There were 245 among the faculty. There were no noteworthy benefactions received during the year and no notable changes in the faculty. The productive funds amounted to $6,697,590, and the income to about $460,000. The library contains 138,285 bound volumes and 54,431 pamphlets. The chancellor of the university is David S. Houston.

WATERLOO, Stanley. An American author and journalist, died October 11, 1913. He was born in St. Clair County, Mich., in 1846; graduated from the University of Michigan in 1869; served as editor on several Chicago and St. Louis papers; and in 1884 established the St. Paul *Day.* He was editorial writer on the Chicago *Tribune*, and for a time editor-in-chief of the Chicago *Mail*, later becoming editor of the Washington *Critic and Capital.* His published writings include: *A Man and a Woman; An Odd Situation; The Study of Ab; The Wolf's Long Howl; The Story of a Strange Career* (1902); *These Are My Jewels; The Cassowary* (1906).

WATER POLLUTION. See Water Purification.

WATER POWER. The two most important hydro-electric developments of the year were the Mississippi River Company's plant at Keokuk, Iowa, and the Hales Bar plant on the Tennessee River. (See Dams.) The Keokuk plant supplies 150,000 horse power, with provision for subsequent increase to an aggregate of about 300,000, while the Hales Bar plant, which had been eight years in the course of construction, in spite of its capacity of 44,000 kilowatts, presented many interesting and original features. Other notable plants during the year, either started or extended, were the Appalachian development on the New River, Va., consisting of five plants, with an aggregate of 75,000 horse power, of which two were already completed; five plants for the New England Power Company on the Deerfield River, four of which were completed and the fifth under construction; a 12,000-horse power plant on the Coon Creek rapids in Minnesota, near Minneapolis; the Turner's Falls development on the Connecticut River, and a number of important systems on the Pacific Coast, including those of the Washington River Power Company, the San Joaquin Light and Power Company, and the Pacific Gas and Electric Company. See also Electric Power, Transmission of.

WATER PURIFICATION. From 1904 to 1913 no less than 17 cities of the United States having populations of 100,000 or more built water-purification plants, and at the close of 1913 the total population in the same country supplied with filtered water was 13,290,000, according to a paper by George W. Fuller, read before the American Public Health Association in September, 1913. The seventeen cities indicated were: Philadelphia, Pittsburgh, Washington, Indianapolis, Providence, Cincinnati, New Orleans, Hackensack (plant serves numerous other New Jersey towns), Louisville, Columbus, Atlanta, Birmingham, Scranton, Minneapolis, Grand Rapids, and (a small part of) New York City. Filter plants were built in Canada recently for Toronto and Saskatoon, and one was under construction for Montreal. Large plants were being built for St. Louis and Baltimore. A very large water-purification plant to treat the portion of the New York water-supply derived from the Croton River was designed through a period of two years and bids for it were received early in 1913. After long delay and some controversy the project was killed by the Board of Estimate and Apportionment, although it had authorized the various steps up to the time for a contract award and the plans had cost perhaps $100,000. The reason given for abandoning the project was that the purification plant was not needed. This was counter to the opinion of nearly every one of a large number of engineers in private practice and all but one engineer in the employ of the city whose opinions on the subject had been obtained. It was generally agreed, however, that filtration was not imperative, but highly desirable as a safeguard against possible infection and as a means of improving the physical character of the water. The Croton supply is of the class known as surface water, and it had long been the rule in Germany that all surface waters should be purified before being offered for domestic consumption. It should be added that the Croton supply was being treated with hypochlorite of lime for the reduction of bacteria, as were also hundreds of the water-supplies of the United States—even where the water was filtered.

Although many of the cities of the United States (like nearly all foreign cities which purify their water) were using slow sand filtration, nearly all the newer plants in this country were installing mechanical filters. Sand is the filtering medium in these, also, but with them the rate is very rapid and the washing is done by means of reversed water currents and air. A coagulant is used with the mechanical filters and lately it has also been used as an aid to sedimentation before turbid waters are passed through slow sand filters. Ozone and ultra-violet rays were still being promoted for reducing the bacterial content of water, but as yet neither could be said to be beyond the experimental or exploitation stage in the United States.

Consult Johnson, *The Purification of Public Water Supplies*, Water-Supply Paper 315, U. S. Geological Survey (Washington, 1913) for a readable review of the subject.

WATER-SUPPLY. See AQUEDUCTS.

WATER-WORKS. Whatever other improvement they may lack, all cities of any account, and most of the small towns and villages of the United States and Canada, have a public water-supply. It was always easy for the towns in well-watered hill sections to introduce "running water," and with the advent of a variety of low-priced pumping apparatus and elevated water tanks it was almost as easy for a town on the plains to get a water-supply—assuming there was water to be had. Unfortunately, no statistics showing the number and size of the water-works of the country have been compiled for many years past.

By far the largest new water-supply construction going on in 1913 was the Los Angeles aqueduct and its accessories, the completion of which was officially celebrated late in the year, although pipe lines from the end of the aqueduct to the city had not been completed; and the Catskill aqueduct and accessories, for New York City which was well advanced at the close of the year. (See AQUEDUCTS.) Projects for notable new water-supplies for Winnipeg, Manitoba, and Ottawa, Ontario, each involving long conduits, were also on foot at the close of the year, but the Ottawa project was clouded with legal difficulties. The San Francisco project for a new water-supply from the Hetch-Hetchy Valley, on the Tuolumne River, was authorized by Congress in December after a long, bitter struggle. The opposition, until near the end, consisted of the Spring Valley Water Company, which was supplying San Francisco with water; the Turlock and Modesto irrigation districts, which had rights in the river; and the so-called "nature lovers," who urged that to flood the Hetch-Hetchy Valley and blot out the beautiful mountain meadow at the proposed reservoir site, which is in the Yosemite National Park, but no part of the Yosemite Valley, would rob the people of the United States of one of their greatest natural beauties. A United States army board of engineers and various other engineers and Federal officials conversant with the subject held that an equally beautiful mountain lake would be substituted for the meadow and that the water-supply needs of San Francisco and the adjacent cities were paramount. The Spring Valley Water Company and the officials of the irrigation districts withdrew their opposition, the company apparently expecting to sell its works to the city, and concessions having been made to the irrigation districts, the bill became a law. See AQUEDUCTS; DAMS; MUNICIPAL OWNERSHIP; WATER PURIFICATION.

WATSON, WILLIAM HENRY. An American physician and scientist, died January 1, 1913. Born at Providence, R. I., in 1829, and graduated from Brown University in 1852, he studied medicine in the University of Pennsylvania, and practiced successfully. But the work for which he became especially known was the development of the higher educational system of New York State, especially those parts of it pertaining to the study of medicine. He succeeded in procuring the passage of an act fixing the educational qualifications essential in beginning the study of medicine, and he was largely influential in extending the term of study for the practice of medicine from three years to four. It was largely due to him that the basis of admission to practice in the three legalized branches of the medical profession was put within the jurisdiction of an independent court appointed by the State. From 1875-81 he was United States pension examining surgeon, and in 1880 was surgeon-general of the State of New York, with the rank of brigadier-general. He contributed many papers to medical journals and delivered many addresses upon medical and literary themes. From 1891-1904 he was a regent of the University of the State of New York.

WEATHER BUREAU. See UNITED STATES under *Agriculture;* and METEOROLOGY.

WEDEKIND, FRANK. See GERMAN LITERATURE.

WEEKS, JOHN WINGATE. An American public official, elected in 1913 United States senator from Massachusetts (see MASSACHUSETTS). He was born in Lancaster, N. H., in 1860 and graduated from the United States Naval Academy in 1881. He served in the navy until 1883, when he engaged in business. From 1886-88 he was Assistant Land Commissioner of the Florida Southern Railway and in the latter year became a member of the firm of Hornblower and Weeks, bankers and brokers, in Boston. In 1903-04 he was mayor of the city of Newton, and in 1905 chairman of the Republican State convention. Elected to the 59th Congress (1905), he was reëlected successively to the 60th, 61st, and 62nd Congresses. On the announcement, in 1912, by Senator Crane that he did not care to serve another term in the Senate, Mr. Weeks became a successful candidate. Mr. Weeks has always taken a strong interest in naval affairs, and was commander of the second division of the auxiliary United States naval corps on the Atlantic Coast during the Spanish-American War in 1898-99; a member of the militia advisory board of Massachusetts and the militia board of examiners (1894-1900): and in 1896 a member of the board of visitors to the United States Naval Academy.

WEEMS, Capell Lain. A former congressman from Ohio, died January 5, 1913. He was born in Whigville, Ohio, in 1860, and received an academic education. He studied law and was admitted to the bar in 1883. In the following year he was elected prosecuting attorney of Noble County, and from 1894-98 was prosecuting attorney of Belmont County, Ohio. He was elected to the Fifty-eighth Congress in 1903, and was reëlected to the Fifty-ninth and Sixtieth Congresses.

WEEVIL. See Cotton.

WEIGHTS AND MEASURES. During the year 1913 an increased use of the international metric system was recorded in several countries, the most notable item of progress being that a change from the old standards of Russia was being undertaken and that the metric system had been officially adopted for certain purposes and its general introduction had been officially favored. Such a step, if consummated, will give a common system of weights and measures to all Continental Europe. It was recorded that the same general tendency was being manifested by the republic of China and that preliminary steps towards the general adoption of the metric system have been taken, while in Japan the children in the schools are being taught the use of the metric units, and it seems only a matter of time when the national units, which are officially defined in terms of the metric system, will be supplanted by the international weights and measures. In Siam a central bureau of standards at Bangkok has been established, and the metric system has been introduced into the public works.

By an order in council made on the recommendation of the English board of trade the 200-milogram, or metric carat, for precious stones and the jewelry trade generally, was adopted for England to take effect April 1, 1914. This carat, which had been adopted by the American jewelry trade in 1912 and become standard on July 1, 1913, was also officially adopted by the United States Bureau of Standards and the Treasury Department, as well as the New York State department of weights and measures, and similar bureaus in other States. This makes practically a universal and international standard of weights in the jewelry trade.

A new alloy, available as a substitute for platinum for standard weights, was announced by M. Guillaume of the International Bureau of Weights and Measures. This material, which is an alloy of copper, chromium, and nickel, is non-porous to gases or liquids, homogeneous, non-hygroscopic, non-magnetic, and non-corrosive.

During the year the question of testing track scales on the various railway lines of the United States aroused increased attention, and there was constructed for the National Bureau of Standards a test-weight car to enable the officials of the bureau to make a systematic inspection of the track scales of the various railways. This car was of original design and carried 90,000 pounds of test weights accurately calibrated together with machinery for their handling. It made its initial trip through Vermont in November and enabled the officials in charge to accumulate considerable data for the future study of weight devices of large capacity, in addition to the testing of railway scales in actual service. (See also Food and Nutrition, section *Food Inspection.*)

WEIHAIWEI. A British leasehold consisting of the island of Liukung, all the islands in the bay of Weihaiwei, and a strip of mainland ten miles wide along the entire coast of the bay. Area, 285 square miles; population (1911), 147,177. Commissioner (1913), Sir J. H. Stewart Lockhart, residing at Port Edward.

WELFARE WORK. During recent years a very considerable number of the largest corporations and other employers of the United States have undertaken various activities which are commonly grouped under the term of welfare work. These include numerous provisions ranging all the way from lunch rooms and locker rooms to the institution of extensive medical and sanitary systems, and provision for old age and compensation for industrial injuries. The United States Bureau of Labor Statistics issued a bulletin (Miscellaneous Series IV; Whole No. 123) entitled, *Employers' Welfare Work,* in which were briefly sketched the plans for industrial betterment in operation in many plants. Included in the study were machine shops, electrical manufacturing companies, woolen mills, factories producing clothing, paints, and various foodstuffs, miscellaneous establishments, printing and publishing houses, mercantile establishments, mail order houses, and telephone, insurance, power, railway, express, and hotel companies.

One of the most expensive schemes is that instituted by the International Harvester Company. Its welfare work was made a regular bureau of the manufacturing department with a superintendent in charge. The superintendents of the twenty plants of the corporation constituted an advisory board for the organization and promotion of welfare work; from them was chosen an executive committee of five. The welfare bureau promotes industrial safety, health and sanitation, educational work, charity, recreation, savings and loans, and civic improvement. Independent of this welfare bureau the company has made provision for old-age pensions, insurance against industrial accidents, and an employes' benefit association. A system of standardized safety devices has been introduced wherever possible in all plants. In addition a pamphlet of rules and instructions printed in ten languages is distributed among employes. Each plant has a safety inspector who regularly inspects each department. Since 1910 the employes in twine mills, lumber mills, steel mills, mines, and on the company railroad have received compensation for injuries resulting from accidents during employment. Compensation in case of death equals three years average wages, but not less than $1500 nor more than $4000. Special compensation for loss of hand, foot, or eye, or other serious injury is provided and graded amounts for injuries resulting in temporary disability only. Since 1908 a pension system has been in operation. All male employes twenty years or more in the service of the company may retire at age sixty-five, and must retire at age seventy. All women employes after twenty years or more of service may retire at fifty years of age and must retire at sixty years of age. Pensions amount to one per cent. of the average annual earnings during the ten years preceding retirement multiplied by the number of years of active service; but no pension is less than eighteen dollars a month or more than one hundred dollars. At the same time a benefit association was organized and its funds guaranteed by the company. This association gives sick benefits to all and accident benefits to all those not included in the industrial accident plan. Its membership in 1910 was 23,246, or about two-thirds of all the employes.

Other extensive plans have been instituted by the United Shoe Machinery Company, the Western Electric and Manufacturing Company, the Shredded Wheat Company, the National Cash Register Company, the Curtis Publishing Company, large department stores in Chicago, New York, Philadelphia, and Boston, and the Chicago Telephone Company. The welfare work of the United States Steel Corporation and the telephone and telegraph companies not included in the Labor Department bulletin is described below.

UNITED STATES STEEL CORPORATION. One of the most extensive industrial betterment schemes is that being carried out by the Steel Trust. It has a voluntary workmen's compensation plan which costs it annually about $2,000,000. This plan does not deny the worker his legal right to bring suit for damages, but since its inauguration such suits have been begun in only one case out of four or five hundred. The corporation has for six years carried on a consistent campaign for the prevention of accidents both by instructions to employes and by the introduction of safety devices. Since 1907 the number of serious accidents has been reduced 43 per cent.; the cost to the companies has been about $2,500,000; and a large sum is annually set aside for the continuance of this campaign. At all mills and mines of the constituent companies provision has been made for hospital and medical care for those injured at work. The pension system is financed by annual appropriations, and a fund of $12,000,000, of which $4,000,000 was given by Andrew Carnegie. Employes who have worked for the corporation twenty years may be retired on pensions ranging from $12 to $100 per month. The corporation has instituted a diversified programme of sanitation and general welfare. This includes sewage disposal, provision of pure water in plants and company houses, drainage, fly prevention, garbage collection, maintenance of neat and attractive yards and properties, the installation of wash-rooms, shower-baths, swimming-pools, and lockers, the establishment of play-grounds, and the cultivation of interest in gardening. Not all of the companies have done all of these things. Most of these reforms require the intelligent coöperation of the workers and their families, and by skillful instruction and management a kindly feeling of employes toward employers was expected to develop. Finally, in 1913, the corporation introduced throughout its activities a six-day week; and effected a reduction in the extent of reliance on the twelve-hour day.

TELEPHONE AND TELEGRAPH COMPANIES. Following the establishment in 1912 of an employes' insurance system for the American Telephone and Telegraph Company, the Western Union Telegraph Company, and the Western Electric Company, there was instituted a system of medical supervision and preventive sanitation. This scheme for protecting health was developed by the employes' benefit fund committee, to which had been given the $10,000,000 set aside in 1912 for retirement pensions, sick benefits, compensation for accidents, and life insurance. Annual appropriations will be made for these purposes and for the new medical department. Dr. Alvah H. Doty, former health officer of the port of New York, was employed as medical director. President Vail announced that this new department was to have a very broad scope, especially in the direction of prevention of all forms of communicable disease. Employes found to be afflicted with tuberculosis were to be promptly removed and cared for by the benefit fund. See also CHARITIES.

WELLAND SHIP CANAL. See CANALS.

WELLESLEY COLLEGE. An institution for the higher education of women, founded at Wellesley, Mass., in 1875. The students enrolled in the several departments in the autumn of 1913 numbered 1480. The teaching force numbered 133. The most noteworthy change in the administration of the college during the year was the appointment of Alice Vinton Waite, professor of English and composition, as dean of the college, to succeed Ellen F. Pendleton, resigned. The college received during the year $100,000 as the first contribution to the $1,000,000 endowment fund which it is attempting to raise. The productive funds in 1912-13 amounted to $1,314,677, and the income for that year to $43,744. The library contains 76,770 volumes.

WELSH DISESTABLISHMENT. See GREAT BRITAIN.

WERNER, ALFRED. A Swiss scientist, awarded in 1913 the Nobel Prize in chemistry. He was born in 1866. Much of his important work has been in connection with molecules. He conceived the molecule in three dimensions, and showed how two compounds might be identical in composition and connections, and yet be different in structure, and consequently different in properties. He developed a new province of the inorganic world, and built up compounds of cobalt, platinum, ammonia, and water as complex as the hydrocarbons.

WESLEYAN METHODIST CONNECTION OF AMERICA. This denomination was founded in 1843 by members of the Methodist Episcopal Church who strongly opposed the institution of slavery. In 1913 there were about 18,765 members and 705 ministers. In the Sunday schools were 21,050 teachers and officers and 26,711 scholars. Three schools of college grade are maintained—at Central, S. C., at Houghton, N. Y., and at Miltonvale, Kan. One school of preparatory grade with a theological department is conducted at Fairmont, Ind. The denomination carries on missions at Sierra Leone, West Africa, and in India. The last meeting of the body was held in October, 1911. See also RELIGIOUS DENOMINATIONS AND MOVEMENTS.

WESLEYAN UNIVERSITY. An institution of higher education at Middletown, Conn., founded in 1831. The enrollment in all departments in the autumn of 1913 was 420. The faculty numbered 41. Professor W. C. Fisher of the department of economics, resigned in the spring of 1913, and Professor Charles A. Tuttle of Wabash College, was appointed in his place. The productive funds of the college amount approximately to $2,120,000, and the income to about $165,000. In the spring of 1913 an endowment fund of $1,000,000 was raised, and of this about $625,000 has already been paid in. The library contains 94,500 volumes. The president is William K. Shanklin, D. D.

WESTERN AUSTRALIA. A state of the Commonwealth of Australia. Area, 975,920 square miles. Population (census of April 3, 1911), 282,114, exclusive of full-blooded aboriginals. Perth is the capital, with (1911) 31,300 inhabitants; population of the local government area, 35,767; with suburbs, 106,792. A report issued during the year on railways indicated that 2854 miles were completed, or in progress, eight lines aggregating 614 miles. The mileage opened was 48 miles on the Eastern system, 35 miles on the Great Southern Railway, and 33 miles in the north. The state lines have a three-foot six-inch gauge, but from Fremantle to Kalgoorlie there was to be a duplicate line of standard 4-foot 8½-inch gauge, so as to fit in with the Trans-Australian line. This was to be 387 miles long and of this 183 miles had been sanctioned. Governor in 1913, Major-General Sir Harry Barron (appointed 1913). Premier, John Scaddan. See Australia.

WESTERN RESERVE UNIVERSITY. An institution for higher education at Cleveland, Ohio, founded in 1826. The students enrolled in the several departments in the autumn of 1913 numbered about 1300. The faculty numbered about 275. There were no noteworthy changes in the faculty during the year. The gifts included the completion of payments of the one-million-dollar endowment for the School of Medicine and the completion of a fund of $80,000 for the memorial dormitory for the College of Women. The productive funds of the university amount to about $3,500,000. The library contains 100,000 volumes. The president is Charles F. Thwing, D. D.

WESTLAKE, John. An English jurist and writer on legal subjects, died April 13, 1913. Born in Cornwall in 1828, educated at Trinity College, Cambridge, he became in 1854, a barrister, was appointed professor of international law in the University of Cambridge in 1888, serving in this position until 1908. From 1900-1906, he was one of the members for the United Kingdom of the International Court of Arbitration and of the Hague Convention. Among his writings on legal subjects were: *A Treatise on Private International Law, or the Conflict of Laws* (1858); *Chapters on the Principles of International Law* (1894); *International Law, Part I. Peace* (1904), *Part II. War* (1907).

WESTPHAL'S COMET. See Astronomy.

WEST VIRGINIA. Population. The population of the State in 1910 was 1,221,119. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 1,306,345.

Agriculture. . The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those given for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	732,000	22,692,000	$18,154,000
	1912	725,000	24,505,000	15,928,000
Wheat	1913	235,000	3,055,000	$ 3,055,000
	1912	233,000	3,378,000	3,412,000
Oats	1913	115,000	2,760,000	1,408,000
	1912	111,000	3,108,000	1,461,000
Rye	1913	17,000	230,000	200,000
	1912	17,000	221,000	186,000
Potatoes	1913	48,000	3,984,000	3,586,000
	1912	47,000	5,264,000	3,264,000
Hay	1913	740,000	a 925,000	13,782,000
	1912	745,000	1,028,000	15,420,000
Tobacco	1913	15,000	b10,200,000	1,224,000
	1912	15,800	12,008,000	1,321,000

a Tons. *b* Pounds.

Mineral Production. The total value of the mineral products of the State in 1912 was $123,872,358, compared with $101,932,248 in 1911.

The coal production in 1913 was estimated by the United States Geological Survey at from 5 to 10 per cent. in excess of that of 1912. Labor troubles in the Cabin Creek and Paint Creek districts of the Kanawha field, were settled during the early part of the year, and resulted in the securing of a foothold by the labor organizations in some of the coal mining districts of the southern part of the State. During the spring, in addition to labor difficulties, shipments to the West were cut off to some extent by disastrous floods in the Ohio Valley region. West Virginia is one of the leading producers of coal. It ranks second among States, having taken the lead over Illinois in 1909. When the value of the product is considered, however, West Virginia drops to a rather poor third. The total production in 1912 was 66,786,687 short tons, valued at $62,792,234. This was the record year in the coal production of the State. In 1911 59,831,580 tons were produced. The average price per ton in 1912 was $.94, compared with $.90 in 1911. Over half the coal in the State is mined by machine.

During the greater part of 1912 the portion of the Kanawha district was the scene of a long and bitter struggle between the miners and the operators. The mines affected were located at Paint and Cabin creeks. (For a history of these troubles, see Strikes and West Virginia, *Politics and Government.*) The influence of these troubles upon the production in 1912 is shown in the decrease of 557,469 short tons, or about 10 per cent., in the production of Kanawha County, and of 340,554 tons in output of Fayette County; whereas in most of the other counties of the State, the production of 1912 showed good gains over the preceding year. The total number of men reported idle because of labor troubles in 1912 was 12,165, and the total number of working days lost was 606,588, or an average of 50 days for each of the men employed. The total number of men employed in the coal mining in 1912 was 68,248, to work an average of 206 days. In 1911 there were 66,730 men at work, an average of 221 days. There were 359 fatal accidents in the coal mines of the State in 1912, compared with 360 in 1911. Of the fatalities in 1912, 346 were underground, 3 in the shafts, and 10 on the surface. Falls of roof were the cause of more than one-half the underground fatalities.

The petroleum production in the State in 1912 was 12,128,962 barrels, compared with 9,795,464 in 1911. The production in 1912 was the largest in the history of the State.

The increase was due to the remarkable development in the Blue Creek field in Kanawha County, which was begun in September, 1911. In 1912 the field extended rapidly northeast and southwest, until it attained a length of about ten miles. In May, the production reached about 25,000 barrels a day, but this decreased until at the end of the year there was a total production of 8000 barrels. Other developments in the same locality resulted in other productive wells. The total number of wells in the State in 1912 was 1657. The total value of the clay product of the State in 1912 was $4,775,874, an increase of $442,454 over 1911. The principal product is the white ware of which the State is the second largest producer.

Transportation. The total mileage of steam railways in 1913 was 3566. The Baltimore and Ohio system had the longest mileage, 1071; the Chesapeake and Ohio had 641; the Norfolk and Western, 437; the Western Maryland Railway Company, 197; and the Virginian Railway Company, 739. The electric railways had a mileage in 1913 of 278.

Education. The total enrollment in the public schools of the State in 1913 was 287,912. The average daily attendance was 202,172. The total number of teachers was 9590. The average yearly salary of teachers, both male and female, was $365. In 1912, the latest year detailed statistics are available, there were 365,456 white pupils of school age in the State, and 17,483 colored pupils. The legislature of 1913 passed several important measures relating to education. These included a provision making it possible for two adjoining school districts to provide for a joint district high school, should such a plan prove feasible. Another act established an agricultural extension in the University of West Virginia. The use of cigarettes in school houses and on school grounds was prohibited.

Finance. The fiscal year in 1913 contained nine months. The legislature of 1912 changed the fiscal year from October 1 to July 1. For the fiscal year October 1, 1912 to June 30, 1913, the total receipts were $4,251,999. The total disbursements for the same period were $5,185,068. There was a balance in the treasury beginning the fiscal year of $1,615,515, and at the end of the fiscal year of $683,466. The chief sources of revenue are from license taxes, taxes on the charters of corporations, and direct taxes on personal and real estate. The State has no bonded debt.

Charities and Corrections. The charitable and correctional institutions under control of the State, with their populations in 1912-13, are as follows: West Virginia Hospital for Insane, Weston, 1030; Second Hospital for Insane, Spencer, 492; West Virginia Asylum, Huntington, 586; Miners' Hospital No. 1, Welch, 51; Miners' Hospital No. 2, McKendree, 28; Miners' Hospital No. 3, Fairmont, 37; West Virginia Penitentiary, Moundsville, 1139; West Virginia Industrial School for Boys, Grafton, 295; West Virginia Schools for the Deaf and Blind, Romney, 195; State Tuberculosis Sanitarium, Terre Alta, 51; West Virginia Colored Orphans' Home, Huntington, 71; and West Virginia Children's Home, Elkins, 32.

Politics and Government. There were no elections for State officers during the year, as the terms of Governor Hatfield and the other State officials do not expire until March 4, 1917. The next State election is on November 7, 1916. The most important incidents in the State's history during the year were connected with the strike in the coal-mining regions. For a detailed account of these strikes, see STRIKES. The legislature on February 24 elected Nathan Goff United States senator to succeed Clarence W. Watson, whose term expired March 4, 1913. Senator Goff was elected after a deadlock which lasted from January 9 until the date of his election. On February 12 five legislators were arrested for bribery, and on February 15 these members were indicted for this crime. All were convicted after exciting trials, and are now serving penitentiary terms. On October 14 Major Matthew M. Neely, Democrat, was elected to Congress from the first district, to succeed John W. Davis, Democrat, who resigned to accept the office of solicitor-general.

Legislation. The legislature met in 1913 and passed several important measures. These include the following: An inheritance tax act, a public utilities act providing for a public service commission having jurisdiction over persons or corporations engaged in any public service business, a workmen's compensation act, an act providing for State-wide prohibition, a blue-sky law, an anti-trust and monopoly law relating to common carriers, laws regulating insurance rates, and a measure establishing a State road bureau and a State system of roads. See also LIQUOR REGULATION.

State Government. Governor, Henry D. Hatfield; Secretary of State, Stuart F. Reed; Superintendent of Free Schools, M. P. Shawkey; Auditor, John S. Darst; Commissioner of Agriculture, Howard E. Williams; Attorney-General, A. A. Lilly; Treasurer, E. L. Long; Adjutant-General, Charles D. Elliott—all Republicans.

Judiciary. Supreme Court of Appeals: President, George Poffenbarger; Associate Judges, William N. Miller, Ira E. Robinson, L. Judson Williams, Charles W. Lynch; Clerk, W. B. Mathews—all Republicans.

State Legislature, 1913. Democrats: Senate, 15; House, 33; joint ballot, 48. Republicans: Senate, 15; House, 53; joint ballot, 68. Republican majority, 20.

The names of senators and representatives to Congress will be found in article UNITED STATES, section *Congress.*

WEST VIRGINIA UNIVERSITY. A State university for higher education, founded in 1867, at Morgantown, W. Va. The students enrolled in all departments of the university in the autumn of 1913 were 714. The faculty numbered 96. In the School of Medicine several important changes were made in the faculty. Aaron Arkin, M. D., Ph. D., was appointed professor of pathology and bacteriology. William Henry Schultz, Ph. D., was appointed professor of pharmacology and materia medica. There were no noteworthy benefactions during the year. The productive funds of the university amount to about $115,000, and the income to about $240,000. This is derived chiefly from the State legislature. The library contains about 46,500 volumes. The president is Thomas E. Hodges, LL. D.

WHALES. See FISH AND FISHERIES.

WHEAT. The world's wheat production in 1913 was about 3,860,000,000 bushels, or approximately 100,000,000 bushels more than were produced in 1912, and about a billion bushels more than the normal yields of twenty years ago. Statistics indicated that the year's yield was the highest ever secured, and the production in several of the principal wheat-growing countries also reached the record mark. According to data published by the International Institute of Agriculture at Rome, Russia ranked first among the countries of the world, with a record yield of approximately 975,000,000 bushels, or nearly 250,000,000 bushels more than the yield of 1912. The yield of European Russia was made up of 295,000,000 bushels of winter wheat and 542,000,000 bushels of spring wheat. The average yield of the winter wheat was 18 bushels and of the spring wheat 12 bushels per acre, while the average acre yield for the total Russian area in Europe and Asia was about 13.5 bushels. The United States ranked next to Russia, with a record yield of 763,380,000 bushels. The crop harvested in British India in the early part of 1913 was about 360,000,000 bushels, which was somewhat less than the crop of the previous year. France produced 322,000,000 bushels, being about 3½ per cent. less than the yield of 1912; and Italy 215,000,000 bushels, or about 30 per cent. more than the year before. The Canadian crop of this year, which amounted to 207,000,000 bushels, was about 4 per cent. greater than the preceding crop, as the result of an increase in acreage, and average acre yield. Germany produced 150,947,000 bushels of winter wheat and 19,928,000 bushels of spring wheat, or a total of 170,875,000 bushels. This was the largest production during the previous ten years, and the rate of yield which was about 35 bushels per acre for each kind of wheat was also the highest for that period. Hungary ranked next to Germany with a yield of about 167,000,000 bushels, being followed by Spain with about 110,000,000 bushels, and Rumania with 104,000,000 bushels.

The United States produced over 33,000,000 bushels of wheat more in 1913 than in 1912. The area devoted to the crop was 50,184,000 acres, which had been exceeded only once. The average yield was 15.2 bushels per acre, compared with 15.9 bushels the year before. On the basis of the farm price of 79.9 cents per bushel on December 1, 1913, the crop was valued at $610,122,000, as against a valuation of $555,280,000 and a farm price of 76 cents per bushel on the corresponding date in 1912. The leading States and their yields were as follows: Kansas, 86,983,000 bushels; North Dakota, 78,855,000; Minnesota, 68,040,000; Nebraska, 62,325,000; Washington, 53,300,000; and Illinois, 41,888,000 bushels. The acreage in the different States ranged from 1000 acres in Mississippi and Vermont to 7,510,000 acres in North Dakota, and the average yield per acre from 9 bushels in South Dakota to 32 bushels in Arizona. The unusually low acre-yield of South Dakota was due to the severe summer drouth, which proved very injurious to the later-maturing wheat fields. South Dakota had an acreage of 3,775,000 acres of which all but 100,000 acres was in spring wheat. The production of Arizona is limited to winter wheat and the acreage for the year was only 29,000 acres.

The winter wheat crop of the United States made an exceptionally good growth in the fall of 1912 and most of it was mature when the dry weather set in which characterized the summer of 1913 over a large portion of the country. The total yield of winter wheat reached 523,561,000 bushels, or about 124,000,000 bushels more than produced in 1912. The crop was grown on 31,699,000 acres, as compared with 26,571,000 acres in winter wheat the year before. As in the previous year Kansas and Nebraska again led in production and acreage, the respective yields being 86,515,000 and 58,125,000 bushels. According to the Department of Agriculture, which published the data here given, 39 States reported winter wheat yields and 18 States spring wheat yields. Of the spring wheat States only two, Maine and Vermont, reported no winter wheat production, and of the winter wheat States 23 produced no spring wheat.

The crop of spring wheat was much injured by the drouth and the production of 239,819,000 bushels was about 90,000,000 bushels below the production of 1912. The acreage was somewhat reduced, being 18,485,000 acres, as against 19,243,000 acres the preceding year. The average acre-yield was reduced from 17.2 to 13 bushels. The leading States and their yields were as follows: North Dakota, 78,855,000 bushels; Minnesota, 67,230,000; South Dakota, 33,075,000; and Washington, 20,900,000 bushels. All other States produced less than 10,000,000 bushels.

WHISKY. See LIQUORS.

WHITE, STEPHEN VAN CULEN. An American financier, died January 18, 1913. He was born in Chatham County, N. C., in 1831, and graduated from Knox College in 1854. A few years later he was admitted to the bar, and for nearly ten years practiced in Des Moines, Iowa. He then removed to New York and became a stock broker, forming the partnership of Marvin and White. This firm failed two years later. In 1882 the firm of S. V. White and Company was organized, and took an important part in the affairs of Wall Street, and Mr. White gained a reputation for skill and daring in his stock manipulations. In 1891 he made an attempt to corner the corn supply of the country. This corner was broken and he failed for $1,000,000. Within a year, however, he had paid off his entire indebtedness. In 1902, at the age of seventy-one, he sold his seat on the Stock Exchange. Mr. White became president of the American Astronomical Society when it was formed in 1883. In 1886 he was elected to Congress as a Republican. He was closely identified with Plymouth Church, and was a warm friend of Henry Ward Beecher. It was said that he paid the expenses of the famous Beecher trial. Mr. White was one of the best-known and most picturesque figures in the financial district of New York.

WHITE, WILLIAM HALE. An English writer, better known under his pen name, "Mark Rutherford," died March 14, 1913. He was born in Bedford, England, in 1829, and in his early years earned a living by hack writing. His full knowledge of certain subjects, including Dissent, past and present, and Calvinism, and his intimate knowledge of the poor, gained through personal experience, made it possible for him to write of these things with authority.

His first successful publication, *The Autobiography of Mark Rutherford,* was widely read throughout English-speaking countries and made a profound impression. It was followed in 1885 by *Mark Rutherford's Deliverance, The Revolution in Tanner's Lane,* in 1877, and *Miriam's Schooling,* 1890. Following these came several volumes of philosophical writings, including a work on Spinoza. In 1898 he published *An Examination of the Charge of Apostasy Against Wordsworth;* in 1900 *Pages from a Journal,* and in 1905 a biography of John Bunyan.

WHITE, Sir William Henry. An English naval officer, died February 27, 1913. He was born at Devonport in 1845. After an education in the local schools he entered the Royal Dockyard at Devonport as an apprentice. At the age of fourteen, in 1864, he took a successful examination for entrance to the Royal School of Naval Architecture. He was instructor in this school and at once entered the admiralty, where he rose to be chief constructor in 1885, continuing in this position until 1902, when he was obliged to retire on account of ill health. During this period he designed and constructed 43 battleships, 26 armored cruisers, 21 first-class protected cruisers, 48 second-class, 33 third-class, and 74 unprotected vessels, a total of 245 vessels. At his resignation Parliament voted him a special grant in recognition of his exceptional services to the navy. He had a large part in the investigation which preceded the construction of the *Lusitania* and *Mauretania,* and he was largely responsible for the use of turbine engines in these ships. Aside from his professional duties he took great interest in scientific matters. Among his publications were: *A Manual of Naval Architecture; A Treatise on Shipbuilding;* and numerous professional papers published in the transactions of the Institutions of Naval Architects, and in those of other scientific bodies.

WHOOPING COUGH. See Vaccine Therapy.

WIDOWS' PENSIONS. See Pensions for Mothers.

WILDER, William Henry. An American public official, member of Congress from Massachusetts, died September 11, 1913. He was born in Belfast, Me., in 1855, and in 1866 removed to Massachusetts. He was educated in the public schools until the age of seventeen, when he worked on a farm. He engaged in mercantile and manufacturing business at Gardner, Mass., and built up a large business which was incorporated as the Wilder Industries. He studied law, and in 1900 was admitted to the bar. In 1911 he was elected to the Sixty-second Congress. He made a special study of monetary questions, and studied the monetary systems in Europe in 1909. He wrote many pamphlets and articles on this and other questions.

WILLIAMS COLLEGE. An institution of higher education at Williamstown, Mass., founded in 1793. The total enrollment in all departments of the college in the autumn of 1913 was 496. The faculty numbered 55. There were no noteworthy changes in the faculty during the year, and no notable benefactions. The productive funds amount to $1,587,286, and the income to $67,862. The library contains about 70,000 volumes. The president is Henry A. Garfield, LL. D.

WILSON, Charles Irving. An American soldier, died September 22, 1913. He was born at Washington, D. C., in 1837, and was educated in the University of Virginia. In 1861 he was appointed assistant surgeon to the United States army with the rank of first lieutenant, and became finally medical director of the cavalry corps of the military division of the Shenandoah Valley. In 1865 he was brevetted major for bravery in engagements in the Shenandoah Valley. After service in Washington, D. C., as executive officer of the Lincoln General Hospital and as post-surgeon at Fort Washington, Md., he resigned from the medical corps and was appointed captain in the United States infantry in 1867. In this capacity he aided in the reconstruction work in the South. He was promoted through various ranks until he became brigadier-general. In 1901 he retired.

WILSON, Henry Lane. See Mexico, *History.*

WILSON, William Beauchop. An American public official. Secretary of Labor in the cabinet of President Wilson. He was born at Blantyre, Scotland, in 1862. In 1870 he removed to the United States and received a common school education in Pennsylvania. From 1871 to 1898 he worked in coal mines in Pennsylvania; took an active interest in labor questions; and in 1888 was elected president of the District Miners' Union, serving until 1890. In 1890 he became a member of the national executive board which organized the United Mine Workers. He was an unsuccessful candidate for Congress in 1892. From 1900-1908 he was secretary and treasurer of the National Union of Miners. In 1907 he was elected to the Sixtieth Congress and was reëlected to the Sixty-second Congress for the term expiring in 1913.

WILSON, President Woodrow. See United States, *passim.*

WINDWARD ISLANDS. The British West Indian colonies of St. Lucia, St. Vincent, and Grenada; together with the Grenadines, attached partly to Grenada and partly to St. Vincent. See articles on separate colonies. The governor and commander-in-chief (1913, Lieut.-Col. Sir James Hayes Sadler) resides at St. George's (Grenada). Included geographically with the Windward Islands are the Barbados and Trinidad and Tobago.

WINE. See Liquors.

WINSLOW, Lyttleton Stewart Forbes. An English physician and psychologist, died July 6, 1913. He was born in London in 1884, and was educated at Downing College, Cambridge. He was a direct descendant of Edward Winslow, the first governor of Plymouth colony. He took his medical degree in 1870, and was associated afterwards with his father. Dr. Winslow became a specialist in lunacy, and appeared as an expert witness in many notable trials in Great Britain and the United States. His published writings on diseases of the mind and other medical subjects include: *Manual of Lunacy; Mad Humanity; Uncontrollable Drunkenness;* and *Spiritualistic Madness.* He was over eight years editor of the *Psychological Journal.* He wrote also a book of reminiscences, entitled *Recollections of Forty Years,* and contributed many articles to reviews in England and the United States.

WIRELESS TELEGRAPHY AND TELEPHONY. The developments in radio-telegraphic practice in 1913 showed a distinct trend from the variety of equipment and methods which marks a partially perfected art to the standardization of a mature one. In no respect was this tendency more pronounced than in the general use of sustained waves. For transmission over a few hundred miles it had become almost universal practice to use comparatively high frequency waves occurring in regular groups. The musical tone so produced in the receiver permits communication to go on through practically all atmospheric disturbances, hence is of highest importance in marine work. The excellent penetrating properties of regular spark frequencies of about 1000 per second received ample demonstration. Among plants intended for transmission over very great distances a tendency arose to utilize the interference of two wave frequencies too high to be audible to produce musical "beat" tones in the receiving equipment.

The perfecting of the radio-compass or direction finder of Bellini and Tosi permits the location of a ship sending out distress signals to be determined without the announcement of its position, also provides means whereby warning signals may be received from light-houses, and in event of sustained fog or cloudy weather permits a ship to ascertain its position by reference to signals sent out from other ships.

A number of new high-power stations were built or begun during the year. The great Arlington station of the United States government performed with marked success in tests and practice and developed a night range of transmission of 3500 miles. This station was conducting important experiments in collaboration with the Eiffel Tower station in Paris to determine the relative velocities of earthed electro-magnetic waves and light. Other high-power stations were established, at Belmar, N. J., by the Marconi Company, and at Sayville, L. I., by the Telefunken Company. The latter was employed in conjunction with the station at Nauen, Germany, for trans-Atlantic communication. It was operated by a 200-kilowatt high-frequency generator. The antenna current was approximately 150 amperes and the wave length 9000 meters. The Goldschmidt Company had built at Hanover, Germany, and Tuckerton, N. J., stations with 800-foot towers and high-frequency generators of 150 kilowatts capacity. This company was bought out by the Marconi Company, which was expected to employ many of its devices in subsequent work.

An interesting experiment was carried on by the Lackawanna Railroad in the application of radio-telegraphy to the dispatching of trains. It was not expected that wireless dispatching would soon displace wire telegraphy and telephony, but the experiment showed its feasibility. It was proposed, however, to equip certain trains with wireless stations for the convenience of passengers.

RADIO-TELEPHONY. The status of radio-telephony was little altered in 1913. The development of this art seemed to point in two directions, one the distortionless transmission of speech over distances greater than can be reached by wire or cable, and the communication between short range stations where it is uneconomical to maintain a telegraph operator. It was still necessary to develop means of modifying vocally the large volumes of radio-power required for long-distance work. Authentic reports of speech transmission over distances of several hundreds of miles indicated that the problem was capable of solution. See SAFETY AT SEA, and FRENCH WEST AFRICA.

WIRELESS TELEPHONY. See WIRELESS TELEGRAPHY AND TELEPHONY.

WISCONSIN. POPULATION. The population of the State in 1910 was 2,333,860. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 2,419,898.

AGRICULTURE. The area, production, and value of the principal crops in 1912-1913 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	1,650,000	66,285,000	$40,095,000
	1912	1,632,000	58,262,000	29,714,000
Wheat	1913	190,000	3,665,000	3,005,000
	1912	188,000	3,564,000	2,958,000
Oats	1913	2,275,000	83,038,000	30,724,000
	1912	2,272,000	84,746,000	27,119,000
Rye	1913	425,000	7,438,000	4,240,000
	1912	341,000	6,240,000	3,806,000
Potatoes	1913	295,000	32,155,000	17,364,000
	1912	29 ,000	34,920,000	11,873,000
Hay	1913	2,375,000	a3,848,000	42,713,000
	1912	2,250,000	3,600,000	43,560,000
Tobacco	1913	43,000	b50,740,000	6,089,000
	1912	42,200	54,438,000	5,988,000

a Tons. b Pounds.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $14,192,287, compared with $12,032,158 in 1911. There were mined in 1912, 860,600 long tons of iron ore, compared with 698,660 tons in 1911. The State ranks fifth in iron ore production. The total value of the clay products in the State in 1912 was $1,044,486, a decrease of $113,653 from 1911. The principal product was common brick.

TRANSPORTATION. The railway mileage of the State on June 30, 1912, was 7517, compared with 7361 in 1911.

EDUCATION. The total school population of the State in 1912 was 775,402. The total enrollment was 435,611. The teachers numbered 12,260, of whom 10,916 were women and 1344 men. The average salary for men teachers monthly was $70.16, and for women teachers, $41.88.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions under the control of the State with their populations on December 31, 1913, were as follows: State Hospital for the Insane at Mendota, 614; Northern Hospital for the Insane at Winnebago, 615; School for the Deaf at Delavan, 172; School for the Blind at Janesville, 45; Industrial School for Boys at Waukesha, 381; State Prison at Waupun, 758; State Public School at Sparta, 138; Home for Feeble-Minded at Chippewa Falls, 1070; State Reformatory at Green Bay, 228; State Tuberculosis Sanitarium at Wales, 145. The population of all the State institutions was 4166.

The legislature of 1913 enacted a number of important laws relating to charities and corrections. Among these were measures providing for the compensation of innocent prisoners who had been wrongfully imprisoned; and an enactment relating to pecuniary assistance to prisoners and their families; a law relating to the employment of prisoners sentenced to county jails and lockups; and a provision for mothers' pensions. The legislature also provided for a tuberculosis camp for convalescent tubercular patients, and for a new home for feeble-minded and epileptics. Another measure provided for a new women's reformatory.

Finance. The total receipts from all sources for the fiscal year 1913 amounted to $15,752,902. The total disbursements for the same period were $16,989,524. At the beginning of the fiscal year there was a balance in the treasury of $3,161,512, and at the end of the fiscal year a balance of $1,924,890. The chief sources of revenue are the corporation taxes, inheritance tax, and income tax. The chief expenditures are educational and administrative. There is no bonded debt except to the State trust funds.

Politics and Government. There were no elections for State officers during the year, as the term of Governor McGovern does not expire until January, 1915. The next State election will be held November 3, 1914. The legislature on February 14 vetoed the resolution for the direct election of senators. A suffrage referendum bill was vetoed by Governor McGovern. The Supreme Court on November 14 held dealings in futures invalid.

Legislation. The most important measures passed in the legislature of 1913 were the following: A blue-sky law applying to all corporations or dealers in stocks and bonds, and requiring filing of schedules of assets, liabilities, etc; a land labor law providing a schedule of prohibited employments for minors and females, adding to the schedule of prohibited employments for children of 16 years of age; two measures providing for the clearing of undeveloped land; an act reorganizing the educational system under a county board of education which has extensive control over rural, elementary, and high schools, county training and county agricultural schools; a measure providing for land mortgage associations and providing for the organization of a joint stock corporation authorized to loan money to farmers and to pledge the mortgages taken as security for bonds issued in order that additional sums may be thus secured for additional loans, these bonds, however, not to be guaranteed by the State. A minimum wage law was passed. This was to be administered by the State industrial commission. A law was enacted providing for mothers' pensions and for public aid to enable the parent to care for children in the home. All male persons are required to pass a medical examination before marriage. A measure was enacted regulating the employment of persons committed to jails and workhouses at hard labor and the payment of their earnings to those dependent upon them. The State board of control is authorized to employ inmates in the State prison in the construction of highways. One of the most important legislative acts was the defeat by a narrow margin of the market commission bill advocated by the governor. This was intended to foster the organization of rural business through coöperative societies and otherwise, and to provide for trade commission somewhat similar to the federal commission now under consideration. The bill also forbade unfair methods of competition, and delegated to the commission administrative power of investigating and declaring what methods were within the prohibitions of the law. See also Liquor Regulation.

State Government. Governor, Francis E. McGovern; Lieut.-Governor, Thomas Morris; Secretary of State, John S. Donald; Treasurer, Henry Johnson; Attorney-General, W. C. Owen; Superintendent of Education, C. P. Cary; Commissioner of Insurance, H. L. E. Kern; Commissioners of Public Lands, Secretary of State, Attorney-General, and State Treasurer—all Republicans.

Judiciary. Supreme Court: Chief Justice, John B. Winslow, Dem.; Associate Justices. Wm. H. Timlin, Dem.; R. G. Siebecker, Dem.; A. J. Vinie, Rep.; Rouje D. Marshall, Rep.; J. C. Kerwin, Rep.; John Barnes, Dem.; Clerk, Clarence Kellogg, Rep.

State Legislature, 1913. Democrats: Senate, 6; House, 24; joint ballot, 30. Republicans: Senate, 23; House, 57; joint ballot, 80. Socialists: Senate, 1; House, 6; joint ballot, 7. Nonpartisans: Senate, 3; House, 13; joint ballot, 16. Republican majority: Senate, 13; House, 14; joint ballot, 27.

The names of senators and representatives to Congress will be found in the article United States, section *Congress*.

WISCONSIN, University of. A State institution of higher learning at Madison, Wis., founded in 1848. The total enrollment in all departments in the fall of 1913 was 4438. This does not include the summer sessions, or the winter short course, which begins on December 1. The faculty in 1913-14 numbered 633. There were no noteworthy changes in the faculty during the year. Among the gifts received was one of $5000 to establish the Hollister pharmacy fellowship fund. The productive funds of the university amount to about $675,-000, and the income from this to about $37,000. The library contains about 195,000 volumes, and 43,000 pamphlets. The president is Charles R. Van Hise, Ph.D.

WISE, John Sergeant. An American lawyer and soldier. died May 12, 1913. He was born in 1848 in Rio Janeiro, Brazil, where his father, Henry A. Wise, was then United States minister. He was educated in private schools and when he was sixteen years of age he entered the Virginia Military Institute, which was subsequently known as the West Point of the Confederacy.

In 1864 the cadets at the institute were mustered into service to meet the movements of General Sigel, among them Wise, then little more than a youth. He was soon commissioned a lieutenant and took part in a number of historic battles, including Appomattox, where Lee surrendered. Lieutenant Wise delivered the last message from Lee to Jefferson Davis. After Appomattox he joined the forces of General Johnston and fought until the final surrender of the last of the Confederate forces. The war over, he entered the University of Virginia, graduated in the class of 1869. began the practice of law with his father in Richmond, and from the start took an active interest in politics. In the later 70's he became a Republican and as such was appointed United States district attorney for the eastern district of Virginia. He was elected congressman-at-large in 1883, and two years later was the unsuccessful Republican candidate for governor of the State. In 1888 Mr. Wise removed to New York to become counsel for the Sprague Electric Company, and other large corporations. His career in New York was one of unusual success. He practiced law until

1911, when he retired. He was one of the best-known orators and after-dinner speakers in the country. Although he became a citizen of New York, his interest in the South remained keen and his influence was often exerted to bring about a better feeling between the North and the South. He wrote several books, including: *Diomed* (1898); *The End of an Era* (1899); *The Lion's Skin* (1905); *Recollections of Thirteen Presidents* (1906); *Citizenship* (1906). *The End of an Era* is a narrative of his early life and his experiences during the war, and is one of the most interesting and important contributions to the history of that period.

WOLSELEY, GARNET JOSEPH, first viscount. An English field-marshal, died March 25, 1913. He was born in Dublin in 1833. Entering military service, he was made an ensign in 1852 and joined the 80th Foot, which was then engaged in the second Burmese War. In 1854 he went to the Crimea; was severely wounded, and so prevented from taking part in the final assault and capture of Sebastopol. In March, 1857, he was ordered to join the 90th Regiment in the expedition to China. At Singapore he first heard of the Indian Mutiny. His regiment was diverted from China to India and he was present at the relief of Lucknow by Sir Colin Campbell in November, 1857, and participated in it with great gallantry. He continued to serve in Lucknow until the beginning of 1860, when he accompanied Sir Hope Grant to China as assistant quartermaster-general. He took part in the Anglo-French expedition against that country. At the end of the China War, when only twenty-eight years of age, he had reached the rank of lieutenant-colonel after only nine years' service, and he participated in four wars with great success. In 1870 in connection with the transfer of the Hudson Bay Company's territories to the Dominion of Canada, the settlers on the Red River, who were principally French half-breeds, rebelled against the transfer. After overcoming heavy obstacles, Colonel Wolseley suppressed the uprising, and in so doing showed great professional ability, power of organization, and fertility of resource. For his services he was made a K. C. M. G. On the withdrawal of the regular troops from the Dominion of Canada, Wolseley returned to England, and after six months was appointed assistant adjutant-general in the war office. He at once plunged into the subject of army reorganization, which was for the time being greatly discussed. When it was decided in 1873 to send an expedition to the Cape Coast to punish the Ashantis for the invasion of the Fanti Protectorate, Sir Garnet Wolseley was appointed in command. After five days' fighting he occupied the capital of Ashanti. The signing of the treaty of peace followed and Sir Garnet sailed for England. From 1874-9 he saw service in Natal, Cyprus, and Zululand and in 1880 was made a G. C. B. and appointed quartermaster-general to the forces. For the next ten years, with the exception of two absences in command of expeditions abroad, he was in the war office. He became adjutant-general in 1882, and in the summer of that year commanded the expedition which put down the rebellion of Arabi Pasha, in Egypt. Wolseley was promoted to be general for his distinguished services in the field and was raised to the peerage as Baron Wolseley of Cairo and Wolseley. He led a second expedition in the autumn of 1884 for the relief of General Gordon at Khartum. Wolseley was mainly instrumental in sending Gordon there. The expedition arrived too late to effect this object, and although the chief blame was placed upon the vacillations of the government, Wolseley was obliged to endure a portion of it. In 1895 he succeeded the Duke of Cambridge as commander-in-chief of the army. He had charge of the organization and transport of men and stores to South Africa at the time of the Boer War, and in this showed his efficiency as an organizer. Although General Wolseley was one of the most notable living soldiers at the time of his death, his reputation was based chiefly upon smaller wars. He was never pitted against a force which equaled his, or against a commanding officer of skill and ability approaching his own.

WOMAN'S CHRISTIAN TEMPERANCE UNION, NATIONAL. An organization formed in Ohio in 1874, for the suppression of the liquor traffic and for other similar purposes. It is regularly organized in every State of the Union. In 1913 there were about 12,000 local unions with a membership, including the children's societies, of about 500,000. The union has 40 distinctive departments of work, presided over by experts. State laws requiring the study of scientific temperance in the public schools were passed largely through the efforts of this organization. The *World's Woman's Christian Temperance Union* was founded by Frances E. Willard, and has auxiliaries in more than 50 countries and provinces. The white ribbon is the badge of all members of the union. The headquarters are in Evanston, Ill. The president in 1913 was Mrs. Lillian M. N. Stevens, Portland, Me.; corresponding secretary, Mrs. Frances P. Parks, Evanston, Ill.; treasurer, Mrs. Elizabeth P. Hutchinson, Evanston, Ill.

WOMAN SUFFRAGE. UNITED STATES. The activity of the women suffragists continued unabated throughout 1913. In the November elections of 1912, constitutional amendments for woman suffrage had been adopted in Arizona, Kansas, and Oregon, but rejected in Michigan and Wisconsin; and a second submission of the amendment in Michigan on April 7, 1913, resulted in defeat by a majority of more than 100,000. The net result was the existing enfranchisement of women in nine States of the American union: Arizona (1912), California (1911), Colorado (1893), Idaho (1896), Kansas (1912), Oregon (1912), Utah (1896), Washington (1910), and Wyoming (1869). During the spring woman suffrage amendments were brought before the legislatures of many States. In Alaska, Arkansas, New Jersey, New York, and Pennsylvania they passed for the first time; in Iowa, Montana, Nevada, North Dakota, and South Dakota they are to be submitted to the people at the next election. The Minnesota Senate twice defeated a resolution of the lower house providing for a popular referendum on the question, and the Maine Senate rejected an Assembly bill of like character. A similar resolution of the Wisconsin legislature was vetoed by the governor. In June the right to vote for presidential electors and city and town officials was extended to the women of Illinois by legislative act. Under a decision of the county court this law permits women to serve as election officers. The constitutionality of the new Illinois statute was questioned, but was upheld in the State courts by a decision of Judge Schuwerk on November 28. On October 15 the circuit court at Cumberland, Md., upheld the right of a woman to have her name inscribed on the election ballot as a candidate for office. Women were appointed to the police force in Chicago and in Los Angeles, and on December 18 a woman was elected mayor of Warrentown, Ore.

The extension of woman suffrage in the States, especially those of the West, encouraged the leaders of the propaganda to inaugurate a vigorous campaign at Washington in behalf of the adoption of an amendment to the Federal Constitution for the enfranchisement of women throughout the nation. Wide publicity was given by the newspapers to the "hike" of a group of suffragists, headed by "General" Rosalie Jones, from New York to Washington, February 12-28, to participate in a big parade in the national capital on the eve of Mr. Wilson's inauguration. The fact that the parade, one of the most remarkable of its kind, was poorly policed, and therefore badly mauled by the crowd, elicited a feeling of sympathy throughout the country. The demonstrators presented petitions both to Congress and to the new President. The Senate committee on woman suffrage, reorganized on March 15, gave several public hearings and reported favorably on May 14, and fifteen days later a congressional inquiry into the disorders attending the Washington parade acquitted the police of blame. On July 31 women delegates representing all the States presented formal petitions for woman suffrage to the Senate. A permanent National Council of Women Voters was organized at the capital, and a week's convention of suffragists opened there on November 29. The convention asked the House of Representatives to provide a permanent committee on woman suffrage similar to that of the Senate and urged an amendment to the Constitution, inserting the single word "sex" in the declaration of the Fifteenth Amendment that "the right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude." The convention considered plans for widening the propaganda during 1914. Among the demonstrations of suffragists during 1913, besides the Washington parade, the New York parade of May 3, the Brooklyn parade of November 1, and the "hike" from New York to Albany in December were conspicuous. A woman suffrage organization for the southern States established headquarters at New Orleans on November 12.

Great Britain. Militancy continued throughout 1913 to characterize the suffrage movement in the United Kingdom. After the Liberal government in January had withdrawn the franchise bill, and the woman suffrage amendment to the Irish home rule bill had been defeated, the militants, led by Mrs. Emmeline Pankhurst and Miss Sylvia Pankhurst, renewed their violence on a larger scale. Shop windows were smashed, some telegraph and telephone wires were cut, golf links were ruined, mail was destroyed in the pillar boxes, vacant dwellings were fired, the new country house of Mr. Lloyd-George, the chancellor of the exchequer, was blown up, railway coaches were damaged, and countless other methods of attack upon property were pursued. As a consequence, many women were arrested and put in jail. Forcible feeding, however, failed in several cases (including that of Mrs. Pankhurst herself) to prevent the success of the "hunger strike" as a method of obtaining release from prison, and it was found necessary for Parliament in April to pass the so-called "cat-and-mouse" bill for the reincarceration of prisoners after recovery from their self-imposed starvation tactics. This act, together with the rejection by the House of Commons on May 6 of a bill, whereby it was proposed to enfranchise about six million women with household qualifications, was the signal for particularly grave outbreaks, which not even the closing of the militants' headquarters by the London police on April 30 could avert. The "arson squad" attempted to set fire to the Royal Academy and other public buildings. Religious services in St. Paul's Cathedral were interrupted by litanies for Mrs. Pankhurst and cries of "votes for women." London crowds, led by Miss Sylvia Pankhurst, tried to storm the houses of Mr. Asquith, the prime minister, and of Mr. Lloyd-George. Riotous demonstrations occurred at Newcastle, Nottingham, and Glasgow, as well as in London. On June 4 Miss Emily Davison was terribly injured by throwing the king's horse at the Derby; she died four days later, and her funeral on June 14 was attended by an enormous procession of women who revered her as a "martyr." On August 28 Mr. Asquith, while playing golf in Scotland, had a narrow escape from a personal assault by women suffragists, and again on November 1 he was attacked with a whip. Meanwhile, under the operation of the "cat-and-mouse" act, Mrs. Pankhurst and her daughter, and also other prominent militants, were repeatedly arrested, convicted, imprisoned, released on parole, and reimprisoned, until on October 9 the home secretary ordered the resumption of forcible feeding for incorrigibles. The suffragists replied by attempting to mob the king and queen and actually burning the country home of Mr. McKenna's brother. In November Miss Sylvia Pankhurst enrolled an "army" of some 2000 men, drawn largely from the poorer sections of London, in order more effectively to combat the government. Mrs. Pankhurst in the same month made a lecture tour of the United States, collecting about $20,000 for the cause. Not all the suffragists of Great Britain approved these tactics, for a meeting of non-militant women in London on July 26 was largely attended from all parts of the country. In general, the Liberal party remained throughout the year divided on the question. The Laborites reaffirmed their support of woman suffrage at their congress on January 30. And the Unionists, while they made provision for woman suffrage in the draft of the proposed constitution for Ulster, refused at the party conference at Norwich on November 14 formally to endorse it for the whole kingdom. (See **Great Britain**, *History*.)

Other Countries. The congress of the International Suffrage Alliance was held in Budapest, June 15-20, and was attended by representatives from twenty-six countries. The congress refused to pronounce on the question of militancy, and Mrs. Carrie Chapman Catt, the prominent American leader, was reëlected pres-

MRS. CARRIE CHAPMAN CATT
President International Woman Suffrage Alliance

MISS JANE ADDAMS
First Vice-President National American Woman Suffrage Association

MRS. MEDILL McCORMICK
Chairman of Congressional Committee

DR. ANNA HOWARD SHAW
President National Suffrage Association

FOUR LEADING WORKERS IN THE WOMAN SUFFRAGE MOVEMENT, 1913

ident of the International Alliance. A bill granting woman suffrage was introduced in the Danish Parliament on September 17. A measure completing the enfranchisement of women in Norway was enacted on June 11, and the first woman to serve formally in the diplomatic service was subsequently accredited by that country to Mexico. The Dutch cabinet announced on September 16 its intention to bring in a bill that would enable women in the Netherlands to vote. The lower house of the Hungarian Parliament passed on March 7 a bill for limited woman suffrage. The French Chamber of Deputies rejected a woman suffrage amendment on November 11 by 311 votes to 133. A woman suffrage bill was presented to the German Reichstag on November 25, five days after a similar measure had been approved by the Bavarian lower house. See also various countries, and States of the United States, under *Politics and Government* or *Legislation*.

WOMEN IN INDUSTRY. Much attention was given to the subject of women's wages and working conditions in 1913. The demand for the enactment of special protection for working mothers was in part met by the passage of mothers' pension acts (see Pensions for Mothers), and in part by laws fixing minimum wages (see Minimum Wage). A great controversy raged through a large part of the year over the relation of low wages to immorality. (See Prostitution.)

National Women's Trade Union League. This organization was formed in 1901 by leaders of the American Federation of Labor. Mrs. Raymond Robins of Chicago is president. At its biennial convention in St. Louis much attention was given to the manner and means of further organizing women workers. It was decided to start in January, 1914, a school for the training of women organizers. The course of study of the school was to be divided between field and class-room work. The field work was to include the practical administrative and organization activities of various trade unions. The class-room work was to be devoted to the history of trade unionism, trade agreements, trade boards, arbitration and conciliation, constitutions of trade unions, union records, reports, conferences, correspondence, and public speaking. Another problem to which the league was giving great attention was industrial training and the increase in efficiency of girls and young women.

At its annual convention the American Federation of Labor voted an assessment of one cent per member "to be expended by the executive council in whatever manner it may deem best and of the greatest advantage in the organization of the wage-earning women of our country."

Legislation. In addition to the legislation noted in the following paragraph there will be found in the articles on Minimum Wage and Pensions for Mothers matter containing summaries of laws relating to women workers. See also Child Labor and Labor Legislation. The following refers almost entirely to the regulation of hours and conditions of work. Arizona, California, Colorado, and Connecticut passed laws limiting the hours of women in various industries to 8 per day, and 55 or 56 per week. Idaho, Missouri, Montana, and Nebraska passed 9-hour laws or extended that in existence. Delaware, Massachusetts, Minnesota, New York, Ohio, Pennsylvania, Rhode Island, Tennessee, and Texas limited the hours in a greater or less variety of industries to 10 per day and to from 54 to 60 per week. New Hampshire limited to 10¼ per day and 55 per week the hours of women workers. Night work was prohibited between 10 P. M. and 6 A. M. in New York and Pennsylvania, the latter in manufacturing establishments only. The legislation regarding hours is far from uniform, much more stringent restrictions being made applicable to manufacturing and mechanical industries than to mercantile. Moreover, frequent exception is made of Saturday afternoons and a short period at Christmas time with reference to work in stores and mercantile establishments. In addition the canning industry is generally excepted. In New York a fairly advanced law permitted females under 18 to work 10 hours per day or 60 per week in canning establishments between June 15 and October 15, or 12 hours per day and 66 per week between June 25 and August 5. Laws regarding seats were enacted in the following States: Arkansas, Idaho, Montana, Nebraska, New York, Pennsylvania, South Dakota, Tennessee, and Texas. Women were prohibited from working two weeks before and four weeks after childbirth in Vermont, and four weeks before and after in Connecticut, following the Massachusetts precedent of 1912.

Constitutionality of Night-Work Law. On December 17 a case was brought in the Court of Special Sessions to test the constitutionality of the New York law providing a period of rest at night for women, effective July 1, 1913. It provided that "in order to protect the health and morals of females employed in factories by providing an adequate period of rest at night, no woman shall be employed or permitted to work in any factory in this State before six o'clock in the morning or after ten o'clock in the evening of any day." An inspector of the State Department of Labor found Louise Kindig working at night for the Charles Schweinler Press. It was understood that the case would go to the highest State court. A similar law of 1907 was declared unconstitutional because it omitted the reference to health. The States of Massachusetts, Indiana, Nebraska, and Pennslyvania also have laws prohibiting the working of women in factories at night.

Constitutionality of the Fifty-four Hour Law. In October a case was begun by William Hoelderlin, a candy-maker of Brooklyn, to test the validity of the New York law limiting the hours of all women in manufacturing to fifty-four per week. Similar laws had been upheld by the United States Supreme Court in the case of Muller v. Oregon, and by the Supreme Courts of Illinois, Michigan, Ohio, California, and Washington. Nearly all of these laws, moreover, were broader in scope than the New York law.

Bibliography. The Bureau of Labor Statistics is publishing a series of studies on *Women in Industry*. The first of these, prepared by Marie Obenauer, was *Hours, Earnings, and Duration of Employment of Wage-Earning Women in Selected Industries in the District of Columbia*. The second report in the series was *Working Hours of Women in the Pea Canneries of Wisconsin;* and the third, *Employ-*

ment of Women in Power Laundries in Milwaukee. In the *Miscellaneous Series* by the same bureau is a pamphlet, *Ten-Hour Maximum Working Day for Women and Young Persons.* There were also issued the final volumes of the nineteen-volume *Report on the Condition of Woman and Child Wage-Earners in the United States*, prepared under the direction of Charles P. Neill. The last volume was *Labor and Factory Conditions, 1912* (1125 pp.). Other books of the year were: Mary Van Kleeck, *Women in the Bookbinding Trade*, with an introduction by Henry R. Seagar; L. R. Matthews, *Women in Trade Unions in San Francisco;* L. Montgomery, *American Girl in the Stockyards District;* A. Popp, *Autobiography of a Working Woman.*

WOMEN OFFICE HOLDERS. See MUNICIPAL GOVERNMENT under *Women Holding Office.*

WOMEN'S CLUBS, GENERAL FEDERATION OF. This body is a federation of State federations of women's clubs. The general body provides a programme for the work of the various State clubs. The following departments are included: Department of art, bureau of information, department of civics, department of civil service reform, department of conservation, department of education, peace committee, political science committee, department of household economics, department of industrial and social conditions, department of legislation, department of literature and library extension, department of music, and department of public health. These departments are each under separate leadership, and a programme for the conduct of the work during each year is outlined for the use of the clubs affiliated with the General Federation. The president in 1913 was Mrs. Percy V. Pennypacker, Austin, Tex.; recording secretary, Mrs. Harry L. Keefe, Walthill, Neb.; corresponding secretary, Mrs. Eugene Reilley, Charlotte, N. C. According to the latest statistics, the federation had a direct membership of 120,522; an indirect membership of 659,840; and an affiliated membership of 597,327.

WOOD ALCOHOL. See ALCOHOL.

WOODFORD, STEWART LYNDON. An American diplomat, died February 14, 1913. He was born in New York City in 1835, and graduated from Columbia College in 1854. From the date of his graduation he took an active part in politics and civic affairs. He studied law and was admitted to the bar in 1857. At the convention at which Lincoln was nominated in 1860 Mr. Woodford was a delegate, and was appointed the official messenger to carry to Washington the electoral votes of the State of New York for Lincoln and Hamlin. He was offered the post of associate United States justice for the Territory of Nebraska by President Lincoln, but declined and was subsequently appointed assistant United States district attorney of New York City. After a year in this office he resigned and enlisted as a private in the 127th New York Volunteers. He was elected captain, and when the regiment was ordered to the front he was commissioned lieutenant-colonel. He took part in the defense of Washington and was in Suffolk, Va., when it was besieged by General Longstreet. He was afterwards attached to the Eleventh Corps of the Army of the Potomac. For a time he was in charge of the batteries used against Fort Sumter and Charleston. In 1864 he was appointed judge advocate-general of the Department of the South, and provost marshal-general and chief of staff of the Department of the South, and was brevetted brigadier-general, and promoted to be colonel. After the evacuation of Charleston by the Confederate troops he organized the provisional government and commanded the city. Following that he was military governor of Savannah. He then resigned from the army and returned to New York City to practice law. After declining the nomination for judge of the court of common pleas, he was in 1866 elected lieutenant-governor under Governor Fenton. A few years later he declined a nomination for Congress. In 1870 he was a candidate for governor, but was beaten by John T. Hoffman, the Democratic candidate. He was a delegate to the Republican national convention which nominated General Grant for the second term, and he seconded Grant's nomination. In 1873 he was elected to the Forty-third Congress, but resigned before the expiration of his term. From 1877-83 he was United States district attorney for the southern district of New York. In 1897 he was appointed United States minister to Spain, and held this office during the momentous days preceding the Spanish War. On the declaration of war he returned to the United States, and became a member of the law firm of Woodford, Bovee, and Butcher. He was president of the commission which organized the Hudson-Fulton celebration, and his efforts contributed much to its success. General Woodford was a member of the Greater New York charter commission. He received degrees of LL. D. from Trinity College and M. A. from Yale and Columbia universities. He was also decorated with the Order of the Rising Sun of Japan, and Crown Order of the first class by the German emperor.

WOODRUFF, CARLE AUGUSTUS. An American soldier, died July 20, 1913. He was born in Buffalo in 1841. In 1861 he was appointed second lieutenant in the second United States artillery, and served throughout the Civil War, receiving successive promotions until he became captain in the second artillery in 1869. He received brevets of major and lieutenant-colonel for gallant services in action. In 1901 he was made colonel in the artillery corps, and in 1903 brigadier-general. In the same year he was retired at his own request after forty years of service. In 1893 he was awarded a congressional medal of honor for gallantry in action at Newby's Cross Roads, Va., in 1863.

WOOL. See STOCK-RAISING AND MEAT PRODUCTION.

WORKINGMEN'S INSURANCE. See WORKMEN'S COMPENSATION; OLD-AGE PENSIONS; PENSIONS FOR MOTHERS; and INSURANCE.

WORKMEN'S COMPENSATION. For a number of years the term employers' liability has tended to be replaced by the term workmen's compensation, owing to an extensive reform in the manner of treating injured workmen. Even with the modified employers' liability, in which the common law defenses were taken away from the employer, injured workingmen received very inadequate compensation for the losses which they suffered. Only a small proportion were able to carry on litigation, and frequently those who were successful received an award quite insufficient to repair their lost earning power. The result has been a remarkably rapid substitution of definitely-prescribed compensation for employers' liability. This furnishes reasonable compensation promptly without litigation, without the great expense of legal procedure, and without adding burdens to charity organizations.

Between 1909 and 1913 inclusive, 24 States and the Federal government created legislative commissions on the subject of compensation. In some other States, commissions were appointed by the governors for the purpose of investigating disadvantages of the old and the advantages of the new methods. In 1913 Indiana, Louisiana, and Vermont created new commissions, and Pennsylvania continued one created in 1911.

General liability laws were enacted or amended in twelve States. These took the form of modifying the employer's defenses as regards railroads in Minnesota, North Carolina, North Dakota, Wisconsin, and Wyoming; and as regards all corporations, except railroads, covered by a law of 1911, in Arkansas. In Florida the principle of comparative negligence was substituted for the complete defense of contributory negligence in certain occupations; in Wisconsin and Wyoming this substitution was made regarding railroad accidents, and in Nebraska regarding all employments.

The more advanced legislation represented by workmen's compensation laws was enacted in Connecticut, Iowa, Minnesota, Nebraska, Oregon, Texas, and West Virginia. Moreover, the laws of California, Illinois, Nevada, Ohio, and Wisconsin were recast. The Oregon law was adopted by referendum in November. The Nebraska law was referred to the State election of November, 1914. Altogether there were 22 States having compensation laws in force at the close of 1913. These laws are compulsory in Colorado, Ohio, and Washington; and election to come under the law is presumed in Connecticut, Illinois, Iowa, Kansas, Minnesota, Nebraska, Nevada, New Jersey, Oregon, and Wisconsin. In Nevada, Oregon, Washington, and West Virginia insurance of the employer must be made through a State fund; in California, Michigan, and Ohio there is a State fund in competition with private and mutual companies which are regulated; in Massachusetts, Texas, and Wisconsin the insurance is made in mutual or private companies encouraged by the State. In Oregon and West Virginia employes are required to contribute to the insurance fund. On account of its advanced character the New York law is the only one fully described below. The experience in Washington and the modified Ohio act are, however, considered, together with data relating to industrial accidents.

New York. In 1910 a workmen's compensation law was enacted by the New York legislature applying to a specified list of dangerous occupations. This law was made a compulsory one and on that ground was declared unconstitutional in 1911 by the Court of Appeals in the notorious Ives decision. A movement was at once begun to secure either an optional law coming within the meaning of that decision or an amendment to the State constitution. The latter was eventually accomplished at the November election in 1913. At the special session of the State legislature thereafter there was passed a law deemed by many the most advanced of any yet enacted in the United States, if not in the world. Because of its importance its features are given somewhat fully.

The new law created a new State department to be known as the State workmen's compensation commission. This is composed of five members appointed by the governor; the chairman has a salary of $10,000 and the others $7000 each. The commissioner of labor is an ex-officio member, but has no vote. The law provides four ways in which an employer may insure himself against losses due to industrial accidents: (1) In a casualty company authorized to do business in the State; (2) in a mutual company composed of not less than forty employers having not fewer than 2500 employes; (3) by the payment of certain designated premiums into a State fund; or (4) by furnishing satisfactory proof to the commission of his financial ability to pay. In the latter case the employer may be required to deposit United States or other government bonds in an amount determined by the commission. This fourth alternative is expected to apply only to railroads or other large corporations.

Those employers accepting the third method are divided into forty-two groups and will pay premiums to a State fund according to rates fixed by the commission. The commission must keep the accounts of each group separate in order to make equitable rates, but the entire fund is available for paying compensation in every industry. Payments must begin to be made on July 1, 1914. Failure to comply with the law makes the employer liable to a penalty of one dollar for every employe for every day after July 1. Moreover, failure to comply renders the employer liable to suit without recourse to the common law defenses of the fellow-servant rule, the doctrine of assumed risk, or the theory of contributory negligence. In this case, however, the employer does have the very frail defenses of willful intention on the part of the injured, and intoxication of the injured as the sole cause. Ten per cent. of the premiums collected from employers insured in the State fund must be set aside until a surplus of $100,000 is created; thereafter five per cent. of such premiums will be added to the surplus until in the commission's judgment the "catastrophe hazard" is covered. In addition the commission will set aside a reserve adequate to meet all anticipated losses and to carry all claims to maturity.

The schedule of compensations is liberal. For permanent total disability 66⅔ per cent. of the average weekly wages is the compensation. In case of temporary total disability, a like percentage of average weekly wages will be paid during the continuance of such disability, but not in excess of $3500. For permanent partial disability two-thirds of the average weekly wages shall be paid for the following number of weeks for the injuries indicated: Loss of thumb, 60; first finger, 46; second finger, 30; third finger, 25; fourth finger, 15; great toe, 38; other toes each, 16; hand, 244; arm, 312; foot, 205; leg, 288; and eye, 128. For any other cases of permanent partial disability 66⅔ per cent. of the difference between the employe's average weekly wages and his wage-earning capacity thereafter will be paid during the continuance of such partial disability. In case of temporary partial disability the injured will receive 66⅔ per cent. of the difference of his average weekly wages and his wage-earning capacity during the continuance of such disability but not to exceed $3500. The weekly payments shall not exceed $20 per week in case of hand, arm, foot, leg, or eye; in all other cases they shall not exceed $15 per week nor be less than $5 per week. Death benefits include funeral expenses up to $100. A widow or dependent husband without a child under eighteen years of age will receive as a life annuity 30 per cent. of the average wages of the deceased; but if the widow remarry the annuity ceases, but she will receive two years' compensation in one sum. For each child under eighteen years of age an additional 10 per cent. will be paid, provided that the total amount paid does not exceed 66⅔ per cent. of the average annual wages. Children left without any parent will each receive 15 per cent. of the annual wages of the deceased. In all cases excess of wages over $100 will not be taken into account in computing compensation.

One of the most notable features of this act is the provision that all claims must be passed upon by the State commission, and all payments, regardless of the manner in which the employer has insured himself, must be made through it. These provisions were designed to prevent the duplicating of staffs of adjusters in all parts of the State, and to protect the injured from being misled or coerced into making settlements for less than the law prescribes.

WASHINGTON. The compensation law of the State of Washington has attracted much attention because of its inclusiveness, its compulsory character, and its administration by means of an insurance fund collected from employers and administered by a State commission. The employers in forty-seven extra-hazardous occupations were required to make contributions, each according to a special premium rate per $100 of his pay-roll. The law fixed the maximum for these rates, the actual rate to be determined by the number of accidents and allowed claims in each group. Thus in logging and lumbering the maximum legal rate is $2.50, but during the first year the rate assessed was $1.46; in street railways the maximum permitted is $3.00, but the actual rate was only 23 cents the first year. The experience for the first eighteen months, to April 1, 1913, showed 6500 firms with 145,000 employes listed by the commission. There were reported 19,226 accidents; claims allowed were 12,753, claims disallowed, suspended, or waived were 4318, and claims being adjusted or investigated, 2155. There had been paid into the fund $1,703,556. Claims to the amount of $929,443 had been paid; there had been invested as a reserve to guarantee pensions to the survivors of killed workmen, $442,681. The gross expense of the commission, which is paid by the State, was $152,829, or 8.2 per cent. of the total fund.

OHIO. The workmen's compensation act of 1911, which was elective and which provided for a State insurance fund, was replaced in part by a compulsory law. This was made possible by an amendment to the constitution and becomes effective January 1, 1914. The new law requires the State and all its subdivisions, even including school districts, to insure their employes and pay definite contributions to the State insurance fund. All employers regularly employing five or more workmen must provide compensation for injury or death in one of three ways: (*a*) By subscription to the State insurance fund; (*b*) by proving their financial ability to meet probable burdens of compensation, and by giving bond when required by the State board; (*c*) by mutual associations of employers. Employes who previously contributed ten per cent. of the insurance fund are neither required nor prompted to make any contribution. Employers complying with the law are relieved of liability for suits under either the common law or the liability laws unless willfully negligent. Workmen employed by one not complying with the law may claim compensation from the State insurance fund. The employer in such a case is liable to suit by the State board. Employers having fewer than five employes may insure their workmen under the act if they wish; otherwise they are liable under the employers' liability law of 1910. The State liability board of awards will establish rates for each trade; it will keep a separate account of money paid in every six months by each employer and the amount paid out in compensation to his employes. Each employer will be credited with any balance, thus reducing his payment for the next six months; any excess of disbursements will be collected from him. The object of these last provisions is to stimulate employers to take all precautions to prevent accidents. The rates of compensation remain substantially unchanged, being from $1500 to $3400 in case of death and 60 per cent. of the impairment of earning capacity in case of injury.

IRON AND STEEL INDUSTRY. A Federal report on accidents and accident prevention in the iron and steel industry (Sen. Doc. 110, 62d Cong., 1st Sess.) was a study of conditions and experience in 155 plants employing 158,604 men. In 1910 there occurred in these plants 274 fatal accidents, 400 permanent injuries, and 35,364 temporary disabilities of more than one day's duration. The report classified sixteen plants having at least two productive departments into class A when safety devices were very good, class B when they were fair, and class C when poor. The results showed that for every 1000 men employed for at least 300 days the accident rate in class A was 167.1, in class B it was 272.4, and in class C it was 507.9. The accident rate in the best plant was 115.9 per thousand employes in 300 days, and in the worst plant 615.7. These figures at once proved the efficacy of a modern safety system and demonstrated the criminal negligence of some boards of directors. The report studied accidents in some plants for a series of years, showing again the results of efforts at prevention. It compared branches of the industry and gave details for accidents of different kinds and for the duration of disabilities. Finally it gave plans for instituting a safety system.

UNITED STATES. The Department of Commerce and Labor early in the year issued a report on accidents and their compensation in the government service from August 1, 1908, to June 30, 1911. It showed that among 400,000 employes there had occurred 21,033 industrial accidents during these thirty-five months. As facilities for reporting accidents were crude, it was estimated that there actually occurred not fewer than 10,000 per year. Of the accidents reported 670 were fatal.. The report estimated that not more than 30 per cent. of the government employes were included within the provisions of Federal compensation laws. Thus, of the injuries reported, over 6000 were not compensated, among which were 390 fatalities and over 1200 serious injuries. Numerous other details of this report showed the inadequacy of the nation's provisions for its injured employes.

In the closing days of his administration President Taft by executive order extended the workmen's compensation principle to employes of the Canal Zone. The operation of this order was, however, suspended about two months later by President Wilson because funds had not been appropriated therefor.

WORKMEN'S INSURANCE. See OLD-AGE PENSIONS; PENSIONS FOR MOTHERS; and WORKMEN'S COMPENSATION.

WORLD PEACE FOUNDATION. See ARBITRATION, INTERNATIONAL.

WRESTLING. Several professional wrestling bouts were held during 1913, but the plan to have S. Zybszko meet Frank Gotch to decide the world's championship fell through. Gotch took part in only one match, that with George Lurich, whom he defeated in straight falls. Zybszko succeeded in winning more than 20 bouts and appears to be the only wrestler who has a chance to take the championship title from Gotch.

The winners of the national championship held under the auspices of the Amateur Athletic Union were: 105-pound, George Taylor, Newark Turn Verein; 115-pound, J. Hines, Boys' Club; 125-pound, V. Vosen, Bronx Church House; 135-pound, A. E. Anderson, Norwegian Turn Verein; 145-pound, C. Johnson, New York A. C.; 175-pound, J. Varger, Boys' Club; heavyweight, Jack Gunderson, Norwegian-American A. C.

Cornell won the intercollegiate championship, with Princeton second and Lehigh third. The winners of the main bouts were: 115-pound, Suppes, Lehigh; 125-pound, Boak, Cornell; 135-pound, Levy, Cornell; 145-pound, Franz, Princeton; 175-pound, Watson, Lehigh; heavyweight, Gile, Princeton.

The English championships held at London produced the following winners: 133-pound, catch-as-catch-can, P. H. Corkings; 133-pound, Cumberland and Westmoreland, E. Winskell; 161-pound, catch-as-catch-can, S. V. Bacon; 161-pound, Cumberland and Westmoreland, J. Winskell; heavyweight, catch-as-catch-can, W. J. West; heavyweight, Cumberland and Westmoreland, J. Winskell.

WRIGHT, GEORGE. An English jurist, died in May, 1913. He was born at Clonakilty, Cork, Ireland, in 1847, and was educated at Dublin University. In 1871 he was called to the bar and in 1891 was elected a bencher of the King's Inns. In 1900 he was appointed solicitor-general for Ireland and in the following year was raised to the bench.

WRIGHT, ORVILLE D. See AERONAUTICS.

WÜRTTEMBERG. See GERMANY.

WYNDHAM, GEORGE. An English statesman and writer, died July 8, 1913. He was born in 1863, educated at Eton and Sandhurst, and after leaving the latter institution, he obtained a commission from the Coldstream Guards, and served with his regiment in the Suakin campaign. After a few years he left the army to become a private secretary to A. J. Balfour, then chief secretary for Ireland. In 1889 he was elected member of Parliament from Dover, and long continued to represent that constituency. He was appointed under secretary for war in 1898, and two years later made a speech in defense of the British army in South Africa, which was one of the great triumphs of his parliamentary career. In the same year he was appointed chief secretary for Ireland, and in this position he served for five years; but political complications soon arose by reason of appointments which were resented by the Irish people, and by reason of a lack of diligence in his attention to the duties of his office. When Mr. Wyndham concluded his term as chief secretary he was a very unpopular official. He will be best remembered in connection with Ireland as the author of the Irish land purchase act of 1903. In 1902 he was elected lord rector of Glasgow University, and of Edinburgh University in 1908. He edited an edition of North's *Plutarch*, and Shakespeare's *Poems*, and was a deep student of literature.

WYOMING. POPULATION. The population of the State in 1910 was 145,965. According to the estimates of the Bureau of the Census, made in 1913, the population in that year was 163,325.

AGRICULTURE. The area, production, and value of the principal crops in 1912-13 are shown in the following table. The figures are from the United States Department of Agriculture, and those for 1913 are estimates only.

		Acreage	Prod. Bu.	Value
Corn	1913	17,000	493,000	$ 394,000
	1912	16,000	368,000	236,000
Wheat	1913	90,000	2,250,000	1,745,000
	1912	76,000	2,181,000	1,745,000
Oats	1913	220,000	8,360,000	3,344,000
	1912	205,000	8,569,000	3,171,000
Rye	1913	4,000	76,000	49,000
	1912	3,000	57,000	37,000
Potatoes	1913	12,000	1,680,000	1,092,000
	1912	11,000	1,540,000	924,000
Hay	1913	480,000	a 912,000	6,110,000
	1912	452,000	859,000	7,387,000

a Tons.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1912 was $13,374,088, compared with $11,483,377. The total coal production of the State in 1912 was 7,368,124 short tons, valued at $11,648,088. It is probable that more than half the entire area of the State is coal-bearing, but in some portions the coal lies under such heavy cover as to be unworkable under present conditions. The production of 1912 was a considerable increase over that of 1911, which was 6,744,664 short tons. The output in 1912 was, with the exception of that of 1910, the largest in the history of the State. The number of men employed in the coal mines of the State in 1912 was 8036, to average 238 days in 1912, against 7924 to average 230 days in 1911. There were 38 deaths by accident in Wyoming coal mines in 1912, compared with 35 in 1911. Of the fatalities in 1912, 32 occurred underground, and 20 of these were falls of roof and coal.

The State produces a small amount of copper, In 1912 this amounted to 25,080 pounds of blister copper, compared with 130,127 pounds in 1911. The Encampment district, which is the most important producing district in the State, was not active in 1912. The year 1912 marked the entrance of Wyoming as an important element in the oil industry, the Mid-West, the Franco-Wyoming, and the Standard Oil Company all being particularly active. In April a gusher which flowed 1200 barrels a day was drilled in the Salt Creek field, 45 miles north of Casper. This development started a general boom in the oil field, especially in Natrona County. The total oil lands in the State increased from 29,550 acres in 1911 to 64,810 in 1912. The total production in the State in the latter year was 1,572,306 barrels, compared with the production of 186,685 barrels in 1911. (The figure for 1911 includes also the production of Utah.) The number of productive fields in the State at the end of 1912 was 189.

TRANSPORTATION. The railway mileage on January 1, 1912, was 1704. During that year the Union Pacific Railroad constructed about 11 miles of new track; the Oregon Short Line about 23 miles; and the Chicago, Burlington, and Quincy about 225 miles. The last-named road, which will probably be completed in 1914, continued the construction of the Wyoming link of its new north and south line from Seattle to Galveston.

EDUCATION. The total school population in 1912 was 35,786. The total enrollment in public schools was 26,502. The total number of teachers was 1225—174 male and 1051 female. The average salary of male teachers was $78 monthly, and of female $57.48.

FINANCE. The report of the State treasurer is for the two years ending September 30, 1912. There was a balance on hand September 30, 1912, of $769,716. The receipts in 1911 were $1,069,970, and in 1912, $1,978,000. The disbursements in 1911 were $944,453, and in 1912 $893,307, leaving a balance on September 30, 1912, of $1,179,672. The chief receipts are from taxation, and the chief expenditures are for State institutions, education, and State officers.

CHARITIES AND CORRECTIONS. The institutions under the control of the State Board of Charities and Reform are the State Hospital for the Insane at Evanston; the Wyoming State Penitentiary at Rawlins; Soldiers' and Sailors' Home at Buffalo; the Big Horn Hot Springs Reserve at Thermopolis; Wyoming General Hospital at Rock Springs; Wyoming General Hospital at Sheridan; Wyoming General Hospital at Casper; and the Wyoming School for Defectives at Lander. The total expenditure for support of these institutions in 1912 was $450,354.

POLITICS AND GOVERNMENT. There was no election of State officers during the year, as the term of Governor Carey does not expire until January 1, 1915. The next State election will be held on November 3, 1914. The legislature on January 29 reëlected Francis E. Warren United States senator. It ratified the income tax amendment and approved the constitutional amendment for the direct election of United States senators.

LEGISLATION. The legislature met in 1913 and passed several important measures. These include the following: An act providing submission to the people of an amendment authorizing a workmen's compensation act; a measure providing for an eight-hour day for workmen on public works; an act prescribing the liability of railroad companies for injuries to and the death of employes. This follows generally the provisions of the federal statute. Marriage of white persons with negroes, mulattoes, Mongolians, or Malays was declared to be void. An act was passed regulating the sale of cocaine and other drugs. See also LIQUOR REGULATION.

STATE GOVERNMENT. Governor, Joseph M. Carey; Secretary of State, F. L. Houx; Treasurer, J. L. Baird; Auditor and Commissioner of Insurance, R. B. Forsyth; Adjutant-General, V. K. Hart; Attorney-General. Douglas A. Preston; Superintendent of Public Instruction, Rose Baird Maley—Houx, Baird, and Preston, Democrats; Carey, Progressive; rest Republicans.

JUDICIARY. Supreme Court: Chief Justice, R. H. Scott; Associate Justices, Cyrus Beard, Chas. N. Potter; Clerk, W. H. Kelly—all Republicans.

STATE LEGISLATURE, 1913. Republicans: Senate, 15; House, 31; joint ballot, 46. Democrats: Senate, 12; House, 26; joint ballot, 38. Republican majority: Senate, 3; House, 5; joint ballot, 8.

The names of senators and representatives to Congress will be found in the article UNITED STATES, section *Congress*.

WYOMING, UNIVERSITY OF. A State institution for higher education founded at Laramie, Wyo., in 1886. The total enrollment in all departments of the university in the autumn of 1913 was 386. The faculty numbered 65. There were no noteworthy changes in the faculty during the year, and there were no notable benefactions. A new agricultural hall costing $100,000 was in process of erection during the year. The productive funds of the university amount to about $50,000, and the income in 1912-13 to $172,250. The greater part of this comes from the State legislature. The library contains about 33,000 volumes. The president is Charles O. Merica, LL.D.

X-RAYS. See BENZOL, PHYSICS, and RADIOTHERAPY.

YACHTING AND MOTOR-BOATING. Morton F. Plant's *Elena* and E. Walter Clark's *Irolita* in 1913 duplicated their brilliant performances of the previous year by winning the more important races for schooners. The *Elena* won the Larchmont Yacht Club's 38½-mile run from New Haven to New London on August 5, captured the rear-commodore's cup in the run from New London to Newport of the New York Yacht Club's squadron on August 6, and on the following day carried off the Astor Cup in a 40-mile race. The death of Mrs. Plant, wife of the *Elena's* owner, resulted in the withdrawal of the schooner from further competition.

This left the field clear for the *Irolita*, which won all but one of the races of the New York Yacht Club's squadron. She captured the vice-commodore's cup, the commodore's cup, and the navy challenge cup. The challenge cup of the Alumni Association of the United States navy passed into the hands of the *Muriel*, Charles Smither's schooner, after a run from Gloucester to Marblehead. The *Muriel* also won the Larchmont Yacht Club's first run from Larchmont to New Haven. Edmund Randolph's sloop *Spartan* (50-foot, one-design class) won the king's cup, and J. P. Morgan's *Grayling* the commodore's cup in a 41-mile run from Provincetown to Marblehead.

In the German-American sonder class race for the President Wilson cup off Marblehead, C. P. Curtis's *Ellen* tied with Guy Lowell's *Cima* and then won in the sail-off. The *Michicago*, representing the Chicago Yacht Club, was the winner of the Manhasset Bay Yacht Club challenge cup. The Brooklyn Yacht Club's 280-mile ocean race was won by the sloop *Ediana*, owned by John A. Crowley. C. Ratsey's *Duchess* was victor in the New York Athletic Club's 100-mile race to Block Island.

Arrangements were made in the summer of 1913 for a renewal of the races for the *America's* cup. Sir Thomas Lipton, through the Royal Ulster Yacht Club, sent a challenge to the New York Yacht Club, holder of the trophy, which was accepted. The races will take place September 10, 12, and 15, 1914. The challenging yacht will be called the *Shamrock IV.* and will be a 75-footer. The defender will be chosen from yachts now being built by the Vanderbilt interests and various individuals.

Motor-boating. Interest in motor-boating in 1913 was chiefly centred in the international race for the Harmsworth trophy, which took place in Osborne Bay, Isle of Wight, England. The United States and France had boats entered in the regatta. E. Mackay Edgar's *Maple Leaf IV.*, an English boat, successfully defended the trophy, and in covering the distance—32.4 nautical miles—established a new world's record of 49.02 knots, or 56.37 statute miles, an hour. *Ankle Deep*, the American contender, owned by Count Casimir Mankowski, finished second in the race, developing a speed of 45.67 knots, or 52.52 statute miles, an hour. *Ankle Deep* also distinguished herself by winning the gold challenge cup over a 29.3-mile course on the St. Lawrence River. She went the distance in 44 minutes, 55 seconds, an average speed of 46.12 miles an hour. H. H. Timken's *Kitty Hawk V.*, in winning the Perry Centennial $1500 prize, made a new American record by averaging 50 miles an hour for 30 miles. James Pugh's *Disturber* and Max Leischmann's *Haida Papoose* deserve mention for making 48.34 miles and 47.04 miles per hour, respectively, during the year. The Philadelphia-Bermuda race (734 miles) was won by *Dream* in 87 hours, 25 minutes, and the Bermuda-Brooklyn race (680 miles) by *Toscam II.* in 70 hours, 27 minutes, 39 seconds.

YALE UNIVERSITY. The total enrollment in all departments of the university in the autumn of 1913 was 3272, divided as follows: Graduate school, 274; non-resident, 79; college, 1307; Sheffield Scientific School, 1112; art school, 56; music school, 91; forest school, 32; department of theology, 91; department of medicine, 48; department of law, 133. The faculty numbered 581, of whom 133 were professors, 89 assistant professors, 149 instructors, 90 assistants in instruction, and 124 assistants in administration.

There were several important changes in the faculty of the university in 1912-13. William H. Taft began his work as Kent professor of law in the autumn of 1913. Several assistant professors were promoted to full professorship. Professor John J. Weir retired from his position as Leffingwell professor of painting and director of the Yale Art School. Among the important gifts received in 1912-13 were the following: By the will of Dr. Francis Bacon, $220,000 for the library fund and $100,000 to the scholarship funds; by bequest from Samuel H. Lyman, $78,000, and from Cyprian S. Brainerd of the class of 1850, $23,000; and gift of $125,000 from Miss Emily F. Southmayd to endow a professorship in the law school in honor of her brother, the late Charles F. Southmayd. The total gifts received during the fiscal year amounted to $1,152,000. (See Gifts and Bequests.) The productive funds of the university amount to about $15,000,000, and the annual income to about $1,700,000. The library contains about 900,000 volumes. The president is Arthur T. Hadley.

YELLOW FEVER. See Vital Statistics.

YOUNG MEN'S CHRISTIAN ASSOCIATIONS, International Committee of. The international committee in 1913 consisted of 71 regular members, 20 advisory members, and a board of trustees of 14 members. It is the direct agent of the associations of the United States and Canada, and is elected by delegates from these associations meeting in triennial convention. Work is carried on in foreign countries—in Asia, Africa, the Levant, Latin America, and the eastern part of Europe. In the home field the committee maintains a force of 99 executive, traveling, and office secretaries, and in the promotion of association work in foreign lands it maintains a staff of 176 secretaries. The membership of the North American associations, according to the latest figures, was 597,800, and the net value of their property $75,000,000. Libraries are maintained by 580 associations, and 770 occupied buildings of their own. There are about 73,000 young men students in educational classes, 360,000 in the physical departments, and 114,000 students in Bible classes. The chairman of the committee in 1913 was Alfred E. Marling; the general secretary, Richard C. Morse; and the executive secretary, Frederic B. Shipp.

YOUNG WOMEN'S CHRISTIAN ASSOCIATIONS, National Board of. The object of this board is to unite in one body Young Women's Christian Associations of the United States; to establish, develop, and unify such associations; to advance the physical, social, intellectual, moral, and spiritual interests of young women; and to participate in the work of the World's Y. W. C. A. There were, in 1913, 216 city associations; 684 students and industrial associations, with a club enrollment of 10,283; and 8 rural associations. The total membership was 280,597. There were 11 Territorial and State organizations called field committees. Each year summer conferences are held to train voluntary workers in bible mission study and association work. Activities include efforts to interest recent college graduates in all forms of social service and work among immigrants, negroes, Indians, etc. During 1913 plans were prepared for a woman's building at the Panama Exposition. Three commissions have been formed, the plans for initiating their work to extend over a period of five years. These are commissions of thrift and efficiency; the commission of social morality; and the commission of character standards. The most notable event in the history of the associations during the year was the raising of $4,000,000 by solicitation. The object of this fund was to erect new buildings, and for other purposes of the associations. The president in 1913 was

Miss Grace H. Dodge; secretary, Mrs. William W. Rossiter; and the treasurer, Mrs. Samuel J. Breadwell. The general secretary is Miss Mabel Gratty.

YUAN SHIH-KAI. See CHINA.

YUKON. A territory of the Dominion of Canada. Area, 207,076 square miles; population (census of June 1, 1911), 8512 (27,219 in 1901). Dawson is the capital, with 3013 inhabitants in 1911. A commissioner administers the territory—George Black in 1913. See CANADA.

ZABERN INCIDENT. See GERMANY.

ZANZIBAR. A British protectorate composed of the islands of Zanzibar (640 square miles), Pemba (380), and several smaller islands. Population, 197,199. The sultan, Seyyid Ali bin Hamond, abdicated December 9, 1911, and was succeeded by Seyyid Khalifa bin Harub. The British agent and consul-general in 1913 was Edward Clarke, residing at Zanzibar, a fine port and the commercial centre.

ZEPPELIN AIRSHIPS. See AERONAUTICS.

ZINC. The production of primary spelter, which is zinc derived from ore, in 1912, was 323,907 short tons, valued at $44,699,166. This was all from domestic ores. The total production of spelter from both domestic and foreign ores was the greatest in the history of the zinc-smelting industry of the United States, being 338,806 short tons, as against 206,526 tons in 1911. Missouri is the greatest producer of spelter. The production in that State in 1912 was 149,557 short tons. From Colorado comes 60,841 short tons, and from Wisconsin 34,137. These are the only States producing more than 20,000 tons. Other States which produce in considerable quantities are New Jersey, Montana, Idaho, and Kansas. The total production of zinc ore in 1912 was 378,816 short tons. The world's production of spelter in 1912 was the largest in the history of the mining of the metal. It formed a total of 1,070,045 short tons. The United States, the largest producer, was followed by Germany with 298,794 short tons in 1912, and by Belgium with 220,678. These are the only countries which had a production of more than 100,000 tons. The imports of zinc in 1912 were valued at $1,363,884. The exports were valued at $1,846,301. The zinc production of the United States in 1913, according to the *Engineering and Mining Journal*, was 356,146 tons, while the production in Europe was about 673,000 metric tons. The world's production of spelter in 1913, as given by the same authority, was 1,001,100 metric tons. See also METALLURGY.

ZOÖLOGY. (See also ENTOMOLOGY, ORNITHOLOGY, FISH AND FISHERIES.) The Ninth International Zoölogical Congress was held at Monaco, beginning March 25 under the presidency of his serene highness, the Prince of Monaco. In contrast to the preceding congresses very few papers in experimental zoölogy and only two in genetics were read. This was unexpected in view of the great interest taken in these subjects by zoölogists in general. Much time was given to the consideration of a report from the committee on nomenclature, especially in connection with the desirability of continuing the application of the law of priority. (See YEAR BOOK for 1907.) It was finally decided that the committee be given power to suspend the rules of nomenclature in special cases, provided that, after consultation with specialists in the groups concerned, the vote of the committee is unanimously in favor of such suspension. If this vote is only a two-thirds one in favor of such suspension, the matter is to be referred to a special committee for subsequent consideration. The full text of the report on nomenclature was published in the *Zoölogischer Anzeiger* for August 29 and September 12. At the congress the Emperor Nicholas prize was awarded to Professors Ernst Bresslau and Th. Mortensen. The O. Kowalevsky prize to Professor Paul Pilsener. The tenth congress was to be held in 1916 at Budapest, with Professor G. Horvath as president.

The Smithsonian Institution reported that their museum had received altogether, from the Roosevelt African Expedition, 23,169 specimens. Of these, 5013 were mammals, 4453 birds, 5153 plants, 2322 reptiles, and 3500 insects.

PROTOZOA. The protozoa, especially in relation to disease, continued to attract attention, the greater part of the work on pathogenic protozoa being on the trypanosomes. Woodruff explained the regular sequence of species of protozoa which appears in hay infusions as due to the fact that each secretes waste products toxic to itself, but not injurious to other species.

TURBELLARIA. Child stated that the small planarian, *Planaria velata*, reproduces by fission. As it crawls along, small particles adhere to the substratum and are left behind. These encyst and in the following spring emerge as new worms. This process Child notes as following a condition of senescence, and is thus a process of rejuvenation.

CESTODES. Scott, experimenting with the tapeworm of the rabbit and dog, *Taenia serrata*, concluded that the final evagination of the cysticercus in the alimentary canal is due to a stimulus first exerted upon it by the gastric, and later by the intestinal, juices. Experiments with artificial fluids showed that if subjected to either gastric or intestinal alone the cysticercus would not evaginate so readily as if it were exposed to both in a sequence like that it would experience in the alimentary canal.

MOLLUSCA. Kishinouye described a Japanese clam, *Meretrix meretrix*, which moves from place to place by secreting long mucous threads which eventually become sufficiently buoyant to support the weight of the animal in the water. It then lets go its hold on the bottom and is carried to considerable distances by the currents. Alverdes made an elaborate study of the composition and mode of formation of pearls. These may be divided into two classes, nucleated and non-nucleated, the former having in the centre some foreign body, the latter without such a centre. The existence of the latter type is denied by some writers, but Alverdes is certain of their existence, for he sectioned many decalcified pearls, and was unable to find them in some specimens. The nucleus may be composed of some one of the normal constituents of the shell, of some bit of tissue from the mussel itself, or of some foreign body. The pearl itself shows the same layers as are present in the shell, sometimes all being represented in a single pearl, but there is no regularity in this respect. The pearls arise in a pearl sack, formed of the mantle. Two may fuse forming a baroque, or one may fuse with the shell forming a shell pearl. The so-called "blister" is a secretion formed over some foreign matter between mantle and shell.

Vertebrates in General. Goodrich discussed the question of homologies among vertebrates, and concluded that such metamerically repeated organs as appendages are homologous, irrespective of whether they lie opposite corresponding vertebræ or not. He considered that homology is independent of ordinal correspondence in segmental position, and the only accurate criterion of homology is to say that organs are homologous when all their parts have been derived from corresponding parts in the ancestor. Delsman returned to the discussion of the origin of the vertebrate phylum, and argued for its origin from an annelid-like ancestor, the stimodaeum of the annelid becoming the neural canal of the vertebrate. The ventral ganglia of the annelids secondarily acquire a connection with this neural tube, and form the dorsal ganglia of the spinal nerves, as is shown by the fact that in the ontogeny these are at first separate from the neural tube, and secondarily acquire a connection with it. This is thus an extension of the theory earlier offered by Dohrn. Delsman thought that the Tunicates and Amphioxus are not in the direct line of descent, but are branched in a different direction from that taken by the Craniates.

Amphibia. Hewitt described from South Africa peculiar tadpoles with large oral disks by means of which they could adhere to rocks or boulders in the mountain streams. These were found at Krantskopf in Natal, at an elevation of from 1500 to 1600 feet. Similar forms have been described from the Himalayas. The sucker in some cases is formed by the enormously developed lips and in others in a special structure.

Reptiles. Ruthaven found in the garter snakes evidence that the breeding season begins at no definite date, but takes place as early in the spring as the weather will permit. The period of gestation is 144 days.

Mammals. Newmann studied the habits of the Texas armadillo, *Dasypus novemcinctus texanus.* These are very abundant in Texas, large numbers being killed each year for their shells, out of which baskets are made and sold as curios. Newmann thinks that the shell is of slight protection against other animals, but that it does protect against thorns and similar structures, the animals often escaping from their pursuers by headlong plunges into bramble thickets. Sight and hearing are apparently both very poor in this animal, the sense of smell giving it its information concerning its surroundings. It is very sensitive to cold, digging burrows six or seven feet deep, with an enlargement at the end, which it lines with grass or leaves. Newmann found an indication of parthenogenesis in this animal, though the egg never goes beyond the early cleavage stage, and polyembryology is well known. (See Year Book of 1912.) Newmann regards the latter as due to mechanical conditions surrounding the fertilized ovum in the uterus, which causes it to break up into several parts.

It was reported that the buffalo herd near Lawton, Wyo., in 1913 contained 48 full-blooded bison, of which 27 were male and 21 female. The increase was slow, because so many more males than females were born.

Chromosomes. Much work on chromosomes appeared during the year, the majority of papers tending to confirm a belief in the existence of a special sex chromosome, present in only half of the spermatozoa. An egg fertilized by one of these spermatozoa develops into a female adult, while an egg fertilized by a spermatozoon devoid of this chromosome develops into a male. Most of the known cases of this sort occur in insects, but Wodsedlek has found them in the pig. Chambers, working on a Daphnid, *Simocephalus,* found that no accessory chromosome appears, but that half of the spermatozoa degenerate. This was in agreement with Morgan's earlier work on Aphids, where a similar degeneration of spermatozoa occurs, only the female-producing ones remaining. This Morgan offered as an explanation of the fact that all fertilized eggs develop into females. Especially by Morgan and his students has the connection been emphasized between the accessory chromosome and the transmission of "sex limited" characters. In place of this latter term, Morgan proposed to use the phrase "sex linked," the character in question not being in any sense limited to sex, but merely closely linked to the sex chromosome in transmission from one generation to the next. Morgan stated that he had found twenty-five of such sex linked characters in *Drosophila,* the fruit fly.

Comparison of the results of breeding experiments on *Drosophila* with what is known of the behavior of the chromosomes in maturation and fertilization of this and other insects had led Morgan and his students to a belief in a very exact casual connection between the behavior of the chromosomes at this time and the mode of inheritance of certain characters. In *Drosophila* certain characters on cross-breeding freely assort and give the Mendelian ratio, while others seem to remain connected and give non-Mendelian results. This Morgan explained on the assumption that in the first case, the characters lie in different chromosomes, while in the second they lie in the same chromosome, and may remain connecting in the breeding process. In some cases, when two sets of sex linked characters are crossed, the resulting offspring shows a new combination of these characters, indicating a "crossing over" from one chromosome to another. It has been shown in some insects that when the chromosomes unite they twist around one another instead of lying side by side. Sturtevant suggested that when they subsequently separate in the formation of tetrads, the plane of division is different from the plane of union, and thus "determiners" originally in one chromosome are transferred to the other and a crossing over is the result. Sturtevant asserted that it is even possible on this assumption, to get information as to the architecture of the chromosome. If two determiners lie near together they will not be separated as frequently as if they lie at some distance from one another on the chromosome. Thus a determination of the relative frequency of the crossing of two characters will enable us to estimate the relative distance apart of any two determiners on the chromosome. This seems as yet extremely hypothetical. Bridges reported some non-Mendelian results in *Drosophila* which he explained on the assumption that in the formation of the polar body, some eggs instead of losing one sex chromosome retained both, while others retained neither. Combination of these eggs with the different forms of spermatozoa would give fertilized eggs with sex chromosomes varying in number from three to none. Aberrant individuals, whose characters might be explained on this assumption of abnormalities in the sex chromosomes, may appear in as high as 5 per cent. of the individuals of a generation.

In connection with the subject of the sex chromosome, Wilson described in the Hemipteron, *Pentatoma*, a small body which he called "chromatoid," which closely resembles the accessory chromosome, but which is quite unlike it in its relations to the cell. Wilson points out the possibility that this has been mistaken for the accessory chromosome by other workers, and that some of the confusion in the literature may have been due to this fact. Foot and Strobell, on the other hand, basing their arguments on the results of a cytological study of some Hemiptera as well as on the results of crossing different species of these insects, came to the conclusion that the chromosomes themselves are too variable and inconstant in character to be as important in heredity as they have been supposed to be, and also that the results of breeding experiments show that certain characteristic sex markings are transmitted in heredity in a fashion that would be impossible if they were linked with a sex chromosome. Zacharias also, in Ascaris, found in opposition to Boveri, that in each division of the egg the chromosomes break down completely, and there is no "keimband" in Boveri's sense. There is, he thought, no individuality of the chromosomes, but they are formed anew after each cell division. These conclusions of Zacharias are, however, in opposition to those reached by practically all students of this subject.

Meek proposed a theory of chromosomal evolution based on what he called a metrical analysis of chromosome complexes. He supposed that the chromatin granules of the Protozoa are visible expressions of specialized particles concerned with the transmission of hereditary characters. As organisms evolved into greater complexity the granules were, by linear growth, converted into rods. This process after a while reached a maximum, when the chromatin conjugated into rods having a diameter twice that previously seen. These segment into chromosomes of a new thread width, and such chromosomes are ready to enter a new course of evolutionary growth. In this way chromosomes of forms below Nemathelminthes have arisen. When a length limit had been reached, there was another combination giving a second type of chromosome, now characteristic of animals from Nemathelminthes to Vertebrates. Within the latter group we get a third type. Thus the animal kingdom may be divided into three groups, each with its own especial type of chromosome. The accessory chromosome does not enter into this scheme, and appears to be undergoing some form of development or disintegration. It may or may not be the determining factor of the sex.

HEREDITY. The work done in heredity during 1913 was mainly a continuation and extension of that done in earlier years. Much of the published reports is very technical and must be regarded rather as accumulated data than as final conclusions which may be summarized at this time. As in earlier years the Mendelians and the Galtonians follow quite definitely opposed methods, and in consequence often reach opposite conclusions. The *Journal of Genetics*, *Biometrika*, *The Journal of Experimental Zoölogy*, and various publications of the Carnegie Institution should be consulted by anyone interested in the details of these investigations. Morgan emphasized the distinction which should be made between a unit character and the factor which is responsible for the appearance of that character. The loss of a unit character does not, in his opinion, mean necessarily the loss of a factor, but merely a readjustment. Thus a character may sometimes be dominant and sometimes recessive, depending entirely on its condition. This condition of the factor might be, to use a chemical phrase, reversible, and the above mentioned result would follow. So many of these factors are now known in the heredity of *Drosophila* that Morgan proposed a new scheme of nomenclature for them, the old scheme lacking adaptability to present needs. Modifications of Morgan's proposed code were suggested by Castle, but no agreement was reached as to the most serviceable method. This assumption of a "reversible" factorial condition, according to Morgan, fits better with certain observations on *Drosophila* than does the "presence and absence" theory of Bateson. Sometimes characters apparently absent will later reappear, something they could not do if really absent in the earlier generations. Apparently another active factor may be temporarily substituted for one previously in evidence.

Doncaster reported that in cats the orange color is sex-linked with the male, being transmitted to female only. A female which receives orange color from male parent and black from female parent is tortoise shell. Newman reported new evidence that night blindness in man is sex-linked. He studied one family where for five generations this has appeared, being transmitted from the affected male through his daughters to some of their sons. Ramaley reported on data concerning the inheritance of left handedness in the families of students in the University of Colorado. In this population he found that this trait occurs in about one-sixth of the whole number, and is inherited as a regular Mendelian recessive.

Davenport reported on the inheritance of skin color in man, basing his conclusion in part on data collected in Bermuda, but mostly from Jamaica, where a considerable amount of inbreeding between blacks and whites has taken place, and where several definite color gradations are commonly recognized. By the use of quantitative methods, Davenport got results which led to the conclusion that in the full-blooded negro from the west coast of Africa there are two double factors, A and B, for black skin pigmentation, and that these are separately inheritable. In inheritance we may get any one of five combinations: (1) No factor, producing white; (2) no B, the A factor simplex, producing quadroon; (3) no B, the A factor duplex, or A and B both simplex, producing mulatto; (4) one factor duplex the other simplex, producing a dark color, and (5) both factors duplex, producing black. An octoroon has no factor and when mated with white would, so far as skin is concerned, produce only white offspring. He found no reason to accept the commonly held notion that two white parents, one of whom had a black ancestor, may have colored offspring.

SEX DETERMINATION. The chromosomal theory of sex determination is that there are two types of spermatozoa, male producing and female producing. If these are present in equal numbers and fertilize the eggs at random, the resulting offspring should be evenly divided as to sexes. Observations have shown that in most animals the sex ratio from generation to generation is fairly constant, and that in a few cases this sex ratio can be more or less altered by modifying external conditions. This has been interpreted as meaning that external conditions directly determine the sex ratio, but there are various difficulties in the way of this explanation. Morgan suggested that the external conditions act, not by a direct effect on the determination of sex, but by influencing the two forms of sex cells differently, thus favoring one at the expense of the other. In this case, we could distinguish between a sex determiner, and a cause which modifies the sex ratio. In a review of the literature of cattle-breeding, Pearl collected evidence to show that if coitus occurs early in the oestral period, the offspring would tend to be female, while if late, it would probably be male. This can only be explained on the assumption that the sex chromosomes are modified in their effects by external conditions. Pearl suggested that the accessory chromosome might be an inhibitor of maleness rather than a female determiner.

Nachtsheim, in a study of the chromosomes of the bee, got cytological evidence in favor of Dzierzon's theory of sex determination, for in drone eggs he was able to get no trace of spermatozoa, sperm asters, or conjugating pronuclei. Similar results were reported by Armbruster in the solitary bees, for here the sex appears early, before feeding begins, and cannot therefore be affected by nutrition.

CONJUGATION. Recent work by Jennings on Paramoecium had indicated that conjugation is not followed by rejuvenation, as some of his lines were weaker after conjugation than before, this being in opposition to earlier work by Calkins, and in substantial agreement with Woodruff, who found that as far as the 3500th generation his cultures of Paramoecium did not weaken when conjugation was prevented. Calkins and Gregory followed along the lines of Calkins's earlier work, but in this case beginning with an ex-conjugant and isolating its immediate descendants as far as the 32-cell stage, they were able to use each of these as the starting point of a pure line. Marked differences appeared between these pure lines in regard to conjugation, some apparently needing it while others did not. Thus among the cells resulting from the division of an ex-conjugant there are apparently the differences that appear between the soma and the sex cells in the Metazoa. Discrepancies between the results obtained in this field by different workers is, then, probably due to fundamental differences in the protoplasm of the different strains employed.

SECONDARY SEX CHARACTERS. Darwin's theory of the origin of secondary sex characters is now practically abandoned, most writers regarding these as due to some influence exerted by the sex organs on the external characters of the body. One theory supposes the presence of a series of internal secretions, or "hormones" sent into the blood from the sex organs, and acting upon body cells in such a way as to produce the characteristics in question. Geoffrey Smith continued his earlier work on the effect of a parasitic crustacean, *Sacculina*, on its host, a crab, where if the host be a male, the animal develops into what is practically a female, with ovary and characteristic secondary sex characters. Smith found that the parasite becomes filled with fat, and at the same time stimulates the liver to an increased secretion of fat. Coincident with this is a diminution in the formation of glycogen. This he thinks can be explained in terms of Ehrlich's side-chain theory. The parasite seizes on the fatty side chains of the liver, which in consequence are regenerated to excess. This, however, is too simple a statement, for the exchange takes place through the medium of the blood, and fat, as such, is not present in the blood, but is in some soluble form in combination with other materials. *Sacculina* seizes on the fatty part of this combination in the blood, setting free the other part to take up more fat from the liver and convey it again to the *Sacculina* roots.

According to Smith, an essentially similar process goes on when the ovary is developing in a normal individual, and there the excess of fat links in the blood are the stimuli leading to the formation of secondary sex characters. Thus the parasitized male forms an ovary, because the effect of the *Sacculina* is essentially similar to that of the developing ovary, the side-chain character liberated into the blood being the same in both cases. This theory, according to Smith, harmonizes better with observed facts than does the assumption of "hormones" thrown into the blood by the sex organs.

INHERITANCE OF ACQUIRED CHARACTERS. As stated in earlier YEAR BOOKS, the question as to the inheritance of acquired characters seems to have narrowed down to a determination of whether any influence can be exerted on the sex cells by forces operating on the surface of the body. Walther, continuing studies on "Die Umwelt des Keimplasmas," experimented on the absorption of magnesium salts into the blood of a crab, *Telephusa*. Here he concluded that there is no reason to believe that chemical substances foreign to the blood can penetrate into and modify the germ plasm. Harms found that when ovaries of one species of salamander are transplanted into the body of another species, the eggs produced by this ovary are like the ones characteristic of the species from which it was taken, and were not modified by the body into which they were put. Weigl reached essentially similar results in the transplantation of skin from one species of salamander to another. The transplanted skin will continue to grow, and become apparently an integral part of the skin of the foreign species, but retain their original character. They are thus self-determining, and not modified by other cells of the body.

On the other hand, Kammerer made elaborate experiments on color changes in *Salamandra maculosa* from which he concluded (1) the color patterns possessed by these animals have definite relation to the background against which they habitually rest, so that it is possible from the study of the color pattern of salamander, to determine the character of its usual environment, and (2) acquired color characters are inherited, and this is not a case of parallel induction. Somatic characters are impressed directly on the germ plasm.

FERTILIZATION. A common belief is that the fertilization of the egg is essentially a chemical process. Observations by Lillie on the eggs of Arbacia strengthen this theory. In this animal and in Nereis Lillie found a substance "fertilizin" secreted by the egg, to which the spermatozoa are positively chemiotactic, and which causes them to agglutinate. Further analysis of this "fertilizin" in Arbacia shows that it is essentially an amboceptor with "oophile" and "spermophile" side chains. When the sperms are bound by the spermophile side-chain, the oophile is released, and by seizing on an egg receptor, fertilizes the egg. Thus the egg is essentially self-fertilizing.

ZULULAND. A province of Natal (q.v.).

ZUYDER ZEE DRAINAGE PROJECT. See DRAINAGE.

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